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# INEEL OU 1-10 Site TSF-09, Tank V-2 Preliminary Liquid Phase Chemical Characterization Summary

- The <u>liquid phase</u> of the waste associated with this tank <u>is considered a wastewater</u> for purposes of complying with the Land Disposal Restrictions, in that it contains <1% TOC and <1% TSS. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.
- **Hazardous Waste Determination:** Highest concentrations detected in the waste are reported.

The RCRA Waste codes that apply to this waste are as follows:

| Constituent                   | Concentration Detected in Waste (mg/L) | Regulatory<br>Limit<br>(mg/L)                                     | Applicable<br>Waste<br>Code | LDR Treatment<br>Standard for<br>wastewater (mg/L) |
|-------------------------------|--|---|-----------------------------|--|
| 2,4-Dinitrotoluene            | ND @ 1                                 | 0.13  | D030                        | 0.32   |
| Hexachlorobenzene             | ND @ 1                                 | 0.13  | D032                        | 0.055  |
| Hexachlorobutadiene           | ND @ 1                                 | 0.5   | D033                        | 0.055  |
| Trans-1,2-Dichloro-<br>ethene | 0.37                                   | 0.054   | UHC                         | 0.054  |
| Trichloroethene               | 0.3 E J                                | 0.5 mg/L as<br>D040, None<br>if F-listed,<br>or 0.054 as<br>a UHC | F001                        | 0.054  |

Note: SVOCs are also identified to be present as UHCs. See write-up below.

• UHC = Underlying Hazardous Constituent

**E** = Exceeded calibration limit for instrument.

J = Estimated Value

ND = Not Detected

- Based on a review of the inorganic analysis, antimony is the only constituent rejected during data validation and determined to be unusable. Since the rejected value is below the underlying hazardous constituent concentration, it is listed here for informational purposes.
- Based on a review of the volatile organic analysis, chloromethane is the only constituent rejected during data validation and determined to be unusable. Since the rejected value is below the underlying hazardous constituent concentration, it is listed here for informational purposes
- The detection limits for a majority of the SVOCs, except for bis(2-ethylhexyl) phthalate and pyrene, were above the wastewater treatment standards. However, since this waste Will not be re-analyzed, the following SVOCs are also assumed to be present at the detection limit value (See attached tables for concentration) and are

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identified as UHCs: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, 2,4-Dimethylphthalate, Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd) pyrene, 2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-din-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, Pyridine, 1,2,4-Trichlorobenzene, 2,4,5-Trichlorophenol, and 2,4,6-Trichlorophenol.. Three of the SVOC constituents (2,4-Dinitrotoluene, Hexachlorobenzene, and Hexachlorobutadiene) also had detection limit above the toxicity characteristic levels. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituent(s) are not present in the waste. However, this waste will not be reanalyzed for 2,4-Dinitrotoluene, Hexachlorobenzene, and Hexachlorobutadieneand it is assumed that these constituents are present at the detection limit value (as identified above).

• Based on a review of the analytical data provided by INEEL, this waste is considered a hazardous waste based on the presence of Trichloroethene as an F-listed constituent, and characteristic, which must be treatment to meet the land disposal restrictions.

#### • Recommendation:

If this waste will not be treated on-site, the waste acceptance criteria of possible offsite treatment facilities should also be considered.

INEEL V-2 Liquids, VOC Analysis

TSF-09, revision 1

| Concentrati mg/L Acetone U (0.01) J Benzene U (0.01) J | Concentration<br>mg/L<br>U (0.01) J | Applicable Regulatory Limit Treatment standard limit if UHC 0.5 mg/l (D018) or treatment | Applicable<br>RCRA Waste |                         |                    |          |
|--|-------------------------------------|--|--------------------------|-------------------------|--------------------|----------|
|  |                                     | Limit Treatment standard limit if UHC 0.5 mg/l (D018) or treatment                       | 2000                     | Standard for wastewater | non-<br>wastewater |          |
|  |                                     | Treatment standard limit if UHC 0.5 mg/l (D018) or treatment                             | epoo                     | in mg/l                 | in mg/kg           | Comments |
|  |                                     | UHC<br>0.5 mg/l (D018)<br>or treatment   |                          |                         |                    |          |
|  |                                     | 0.5 mg/l (D018)<br>or treatment  | OHC                      | 0.28                    | 160                |          |
|  |                                     | or treatment   |                          |                         |                    |          |
|  |                                     | •  |                          |                         |                    |          |
|  |                                     | standard limit if  |                          |                         |                    |          |
|  | 01) J                               | UHC  | D018 or UHC              | 0.14                    | 10                 |          |
|  |                                     | Treatment  |                          |                         |                    |          |
|  |                                     | standard limit if  |                          |                         |                    |          |
| Bromodichloromethane U (0.01) J                        | 01) J                               | UHC  | UHC                      | 0.35                    | 15                 |          |
|  |                                     | Treatment  |                          |                         |                    |          |
| Bromoform  |                                     | standard limit if  |                          |                         |                    |          |
| (Tribromomethane) U (0.01) J                           | 01) J                               | 오  | OHC                      | 0.63                    | 15                 |          |
|  |                                     | Treatment  |                          |                         |                    |          |
|  |                                     | standard limit if  |                          | ,                       |                    |          |
| Bromomethane U (0.01) J                                | 01) J                               | OHC  | OHC                      | 0.11                    | 15                 |          |
|  |                                     | 200 mg/l (D035)  |                          |                         |                    |          |
|  | -                                   | or treatment   |                          |                         |                    |          |
|  |                                     | standard limit if  |                          |                         |                    |          |
| 2-Butanone (MEK) U (0.0                                | U (0.01) J                          | OHO  | D035 or UHC              | 0.28                    | 36                 |          |
|  |                                     | Treatment  |                          |                         |                    |          |
|  |                                     | standard limit if  |                          |                         |                    |          |
| Carbon disulfide U (0.01) J                            | 01) J                               | OHC  | OHC                      | 3.8                     | 4.8 mg/l           |          |
|  |                                     | Treatment  |                          |                         |                    |          |
| Carbon tetrachloride U (0.01) J                        |                                     | UHC  | OHC                      | 0.057                   | 9                  |          |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

R = Result rejected during validation and unusable. E = Exceeded calibration range of instrument.

|                        |               |                   |             |              | LDR          |   |
|------------------------|---------------|-------------------|-------------|--------------|--------------|---|
|                        |               |                   |             | LDR          | Treatment    |   |
|                        |               |                   |             | Treatment    | Standard for |   |
|                        | ļ<br>1        | Applicable        | Applicable  | Standard for | non-         |   |
|                        | Concentration | Regulatory        | RCRA Waste  | wastewater   | wastewater   | *   |
| Constituents           | mg/L          | Limit             | Code        | in mg/l      | in mg/kg     | Comments  |
|                        |               | ·                 |             |              |              |   |
|                        |               | 100 mg/l (D021)   |             |              |              |   |
|                        |               | or treatment      |             |              |              |   |
|                        |               | standard limit if |             |              | _            |   |
| Chlorobenzene          | U (0.01) J    | UHC               | D021 or UHC | 0.057        | 6            |   |
|                        |               | Treatment         |             |              |              |   |
|                        |               | standard limit if |             |              |              |   |
| Chloroethane           | U (0.01) J    | UHC               | UHC         | 0.27         | 6            |   |
|                        |               | 6 mg/l (D022) or  |             |              |              |   |
|                        |               | treatment         |             |              |              |   |
|                        |               | standard limit if | 5000 11110  |              |              |   |
| Chloroform             | U (0.01) J    | UHC               | D022 or UHC | 0.046        | 6            |   |
| }                      |               | Treatment         |             |              |              | Since this value was rejected, it will have to be |
| 01.15                  | 0015          | standard limit if |             | 0.40         |              | re-analyzed to determine concentration in the     |
| Chloromethane          | 0.01 R        | UHC               | UHC         | 0.19         | 30           | waste.  |
| B:h                    |               | Treatment         |             |              |              |   |
| Dibromochloromethane   | 11/0.04       | standard limit if |             | 0.057        | 4.5          |   |
| (Chlorodibromomethane) | U (0.01) J    | UHC               | UHC         | 0.057        | 15           |   |
|                        |               | Treatment         |             |              |              |   |
| A A Dishlass of base   | 0.000 1       | standard limit if |             | 0.050        |              |   |
| 1,1-Dichloroethane     | 0.036 J       | UHC               | UHC         | 0.059        | 6            |   |
| :                      |               | 0.5 (1. (5.000)   |             |              |              |   |
| ·                      |               | 0.5 mg/l (D028),  |             |              | [            |   |
|                        |               | or treatment      |             |              |              |   |
| 4.0 Diablamanthers     | 11/0.04       | standard limit if | D000 11110  | 0.04         |              |   |
| 1,2-Dichloroethane     | U (0.01) J    | UHC               | D028 or UHC | 0.21         | 6            |   |

U = Not Detected (Detection limit in parenthesis).

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|                         |               |                       |             |              | LDR          |   |
|-------------------------|---------------|-----------------------|-------------|--------------|--------------|---|
|                         |               |                       |             | LDR          | Treatment    |   |
|                         | 1             |                       |             | Treatment    | Standard for |   |
|                         | !             | Applicable            | Applicable  | Standard for | non-         |   |
|                         | Concentration | Regulatory            | RCRA Waste  | wastewater   | wastewater   |   |
| Constituents            | mg/L          | Limit                 | Code        | in mg/l      | in mg/kg     | Comments                                  |
|                         |               | 0.7 mg/l (D029)       |             |              |              |   |
|                         |               | or treatment          |             |              |              |   |
|                         | 1             | standard limit if     |             |              |              |   |
| 1,1-Dichloroethene      | U (0.01) J    | UHC                   | D029 or UHC | 0.025        | 6            |   |
|                         |               | Treatment             |             |              |              | The 0.37 mg/L concentration exceeds the   |
| trans-1,2-              |               | standard limit if     |             |              |              | ww treatment standards and is therefore a |
| Dichloroethene          | 0.37 EJ       | UHC                   | UHC         | 0.054        | 30           | UHC.                                      |
|                         |               | Treatment             |             |              |              |   |
|                         |               | standard limit if     |             |              |              |   |
| 1,2-Dichloropropane     | U (0.01) J    | UHC                   | UHC         | 0.85         | 18           |   |
|                         |               | Treatment             |             |              |              |   |
|                         |               | standard limit if     |             |              |              |   |
| cis-1,3-Dichloropropene | U (0.01) J    | UHC                   | UHC         | 0.036        | 18           |   |
|                         | ,             | Treatment             |             |              |              |   |
| trans-1,3-              |               | standard limit if     |             |              |              |   |
| Dichloropropene         | U (0.01) J    | UHC                   | UHC         | 0.036        | 18           |   |
|                         |               | Treatment             |             |              |              |   |
| Este de como o          | 11 (0.04)     | standard limit if     |             | 0.057        | 40           |   |
| Ethylbenzene            | U (0.01) J    | UHC                   | UHC         | 0.057        | 10           |   |
| 2-Hexanone (Methyl n-   | 11/0.04       |                       | NIA         |              | NIA          |   |
| butyl ketone)           | U (0.01) J    | NA<br>Ttt             | NA          | NA           | NA           |   |
| 4 Mothyl 2 poptococo    |               | Treatment             |             |              |              |   |
| 4-Methyl-2-pentanone    | 1 11 (0.01)   | standard limit if UHC | ППС         | 0.14         | 22           |   |
| (MIK)                   | U (0.01) J    | Treatment             | UHC         | 0.14         | 33           |   |
|                         |               | standard limit if     |             |              |              |   |
| Methylene chloride      | U (0.01) J    | UHC                   | UHC         | 0.089        | 30           |   |
| ivietrylerie Crioride   | 0 (0.01) 3    |                       | UNC         | 0.009        | 30           |   |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

R = Result rejected during validation and unusable.

|                          |               | T                 |             | T            | LDR          | ·   |
|--------------------------|---------------|-------------------|-------------|--------------|--------------|---|
|                          |               |                   |             | LDR          | Treatment    |   |
|                          |               |                   |             | Treatment    | Standard for |   |
|                          |               | Applicable        | Applicable  | Standard for | 1            |   |
|                          | Concentration | Regulatory        | RCRA Waste  | wastewater   | wastewater   |   |
| Constituents             | mg/L          | Limit             | Code        | in mg/l      | in mg/kg     | Comments  |
| Styrene                  | U (0.01) J    | NA                | NA          | NA           | NA NA        |   |
|                          |               | Treatment         |             |              |              |   |
| 1,1,2,2-                 |               | standard limit if |             |              |              |   |
| Tetrachloroethane        | U (0.01) J    | UHC               | UHC         | 0.057        | 6            |   |
|                          |               | 0.7 mg/l (D039)   |             |              |              |   |
|                          |               | or treatment      |             |              |              |   |
|                          |               | standard limit if |             | :            |              |   |
| Tetrachloroethene        | U (0.01) J    | UHC               | D039 or UHC | 0.056        | 6            |   |
| İ                        |               | Treatment         |             |              |              | •   |
|                          |               | standard limit if | ,           |              |              |   |
| Toluene                  | U (0.01) J    | UHC               | UHC         | 0.08         | 10           |   |
|                          |               | Treatment         |             |              |              |   |
| 444                      |               | standard limit if |             |              |              |   |
| 1,1,1-Trichleroethane    | U (0.01) J    | UHC               | UHC         | 0.054        | 6            |   |
|                          |               | Treatment         |             |              |              |   |
| 4.4.0 Trialitans atheres | 11 (0.04)     | standard limit if |             |              |              |   |
| 1,1,2-Trichloroethane    | U (0.01) J    | UHC               | UHC         | 0.054        | 6            |   |
| Trichloroethene          | 0.3 E J       | None if listed    | F001        | 0.054        | 6            | 0.3 mg/L is below the characteristic limit,<br>but exceeds the wastewater treatment<br>standard. Therefore it is a UHC. |
|                          |               |                   |             |              |              |   |
|                          |               | 0.2 mg/l (D043),  |             |              |              |   |
|                          |               | orTreatment       |             |              |              |   |
|                          |               | standard limit if |             |              |              |   |
| Vinyl chloride           | 0.02          | UHC               | D043 or UHC | 0.27         | 6            |   |
| Xylene (ortho)           | U (0.01) J    | NA                | NA NA       | NA           | NA           |   |

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J = Estimated Value

R = Result rejected during validation and unusable.

| Constituents           | Concentration<br>mg/L | Applicable<br>Regulatory<br>Limit | Applicable<br>RCRA Waste<br>Code | LDR<br>Treatment<br>Standard for<br>wastewater<br>in mg/l | LDR Treatment Standard for non- wastewater in mg/kg | Comments |
|------------------------|-----------------------|-----------------------------------|----------------------------------|---|---|----------|
|                        |                       | Treatment                         |                                  |   |   |          |
| Xylene (total meta and |                       | standard limit if                 |                                  |   |   |          |
| para)                  | U (0.01) J            | UHC                               | UHC                              | 0.32  | 30  |          |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

R = Result rejected during validation and unusable.



|                                     |               |                        |            |              | LDR          |                                    |
|-------------------------------------|---------------|------------------------|------------|--------------|--------------|------------------------------------|
|                                     |               |                        |            | LDR          | Treatment    |                                    |
|                                     |               |                        |            |              | Standard for |                                    |
|                                     |               | Applicable             | Applicable | Standard for | non-         |                                    |
|                                     | Concentration | Regulatory             | RCRA Waste | wastewater   | wastewater   |                                    |
| Constituents                        | mg/L          | Limit                  | Code       | in mg/l      | in mg/kg     | Comments                           |
|                                     |               | UHC Treatment          |            |              | g/kg         | 1 mg/L detection limits exceed the |
| Acenaphthene                        | U (1)         | Standard               | UHC        | 0.059        | 3.4          | wastewater treatment standard.     |
| 7 tooriapriiriorio                  | J (1)         | UHC Treatment          | 0110       | 0.000        | 0.4          | 1 mg/L detection limits exceed the |
| Acenaphthylene                      | U (1)         | Standard               | UHC        | 0.059        | 3.4          | wastewater treatment standard.     |
| 7 tooriapriaryierio                 | <u> </u>      | UHC Treatment          | 0110       | 0.000        | 0.4          | 1 mg/L detection limits exceed the |
| Anthracene                          | U (1)         | Standard               | UHC        | 0.059        | 3.4          | wastewater treatment standard.     |
| Antinacene                          | 0 (1)         | UHC Treatment          | 0110       | 0.059        | 3.4          | 1 mg/L detection limits exceed the |
| Benzo (a) anthracene                | U (1)         | Standard               | UHC        | 0.059        | 3.4          | wastewater treatment standard.     |
| Derizo (a) artificacerie            | 0(1)          | UHC Treatment          | 0110       | 0.059        | 3.4          | 1 mg/L detection limits exceed the |
| Ronzo (a) pyrono                    | U (1)         | Standard               | UHC        | 0.061        | 3.4          | wastewater treatment standard.     |
| Benzo (a) pyrene                    | 0(1)          | UHC Treatment          | Unc        | 0.001        | 3.4          |                                    |
| Ponzo (h) fluoranthana              | 11.74         | Standard               | UHC        | 0.44         | 6.8          | 1 mg/L detection limits exceed the |
| Benzo (b) fluoranthene              | U (1)         | UHC Treatment          | UNC        | 0.11         | 0.6          | wastewater treatment standard.     |
| Ponzo (a h I) nondono               | 1174)         |                        | UHC        | 0.0055       | 4.0          | 1 mg/L detection limits exceed the |
| Benzo (g,h,I) perylene              | U (1)         | Standard UHC Treatment | UNC        | 0.0055       | 1.8          | wastewater treatment standard.     |
| Dommo (Is) fluoremakana             | 11.74)        |                        |            | 0.44         |              | 1 mg/L detection limits exceed the |
| Benzo (k) fluoranthene Benzoic acid | U (1)         | Standard               | UHC        | 0.11         | 6.8          | wastewater treatment standard.     |
|                                     | U (1)         | None                   | NA         | NA           | NA<br>NA     |                                    |
| Benzyl alcohol                      | U (1)         | None                   | NA NA      | NA           | NA           |                                    |
| But the same to be at 1             | 11.44         | UHC Treatment          |            | 0.047        | 00           | 1 mg/L detection limits exceed the |
| Butylbenzylphthalate                | U (1)         | Standard               | UHC        | 0.017        | 28           | wastewater treatment standard.     |
| Bis (2-                             |               | UHC Treatment          |            |              |              | 1 mg/L detection limits exceed the |
| chloroethoxy)methane                | U (1)         | Standard               | UHC        | 0.036        | 7.2          | wastewater treatment standard.     |
|                                     |               | UHC Treatment          |            |              |              | 1 mg/L detection limits exceed the |
| Bis (2-chloroethyl)ether            | U (1)         | Standard               | UHC        | 0.033        | 6            | wastewater treatment standard.     |
|                                     |               | UHC Treatment          |            |              |              | 1 mg/L detection limits exceed the |
| Bis (2-chloroisopropyl) ether       | U (1)         | Standard               | UHC        | 0.055        | 7.2          | wastewater treatment standard.     |

U = Not Detected (Detection limit in parenthesis).



| 0.2 J<br>U (1)<br>U (1) | Regulatory Limit UHC Treatment Standard UHC Treatment Standard | RCRA Waste<br>Code<br>UHC   | wastewater<br>in mg/l<br>0.28    | wastewater<br>in mg/kg | Comments                              |
|-------------------------|--|---|----------------------------------|------------------------|---------------------------------------|
| 0.2 J<br>U (1)          | UHC Treatment<br>Standard<br>UHC Treatment<br>Standard         |   |                                  | in mg/kg               |                                       |
| U (1)                   | Standard<br>UHC Treatment<br>Standard                          | UHC   | 0.28                             |                        |                                       |
| U (1)                   | UHC Treatment<br>Standard                                      | UHC   | l 0.28                           | l l                    | Concentration is below both treatment |
|                         | Standard   |   | 1 0.20                           | 28                     | standards, therefore it is not a UHC. |
|                         |  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   |  | UHC   | 0.055                            | 15                     | wastewater treatment standard.        |
|                         | None   | NA  | NA                               | NA                     |                                       |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.059                            | 3.4                    | wastewater treatment standard.        |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.46                             | 16                     | wastewater treatment standard.        |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.018                            | 14                     | wastewater treatment standard.        |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.055                            | 5.6                    | wastewater treatment standard.        |
| U (1)                   | None   | NA  | NA NA                            | NA                     |                                       |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.044                            | 5.7                    | wastewater treatment standard.        |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.055                            | 8.2                    | wastewater treatment standard.        |
| U (1)                   | None   | NA  | NA                               | NA                     |                                       |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.088                            | 6                      | wastewater treatment standard.        |
|                         | UHC Treatment  |   |                                  |                        | 1 mg/L detection limits exceed the    |
| U (1)                   | Standard   | UHC   | 0.036                            | 6                      | wastewater treatment standard.        |
|                         | 7.5 (D027), UHC  |   |                                  |                        | 1 mg/L detection limits exceed the    |
|                         | Standard   | D027, UHC   | 0.09                             | 1                      | i mare detection limits exceed the    |
|                         | ) (1)<br>) (1)<br>) (1)<br>) (1)                               | J (1) Standard  J (1) None  UHC Treatment Standard  UHC Treatment J (1) Standard  UHC Treatment J (1) None  UHC Treatment Standard  UHC Treatment Standard  UHC Treatment J (1) Standard  7.5 (D027), UHC Treatment | J (1)   Standard   UHC     J (1) | Standard               | Standard                              |

U = Not Detected (Detection limit in parenthesis).



|                            |                    |               |            |              | LDR          |                                    |
|----------------------------|--------------------|---------------|------------|--------------|--------------|------------------------------------|
|                            |                    |               |            | LDR          | Treatment    |                                    |
|                            | ·                  |               |            | Treatment    | Standard for |                                    |
|                            |                    | Applicable    | Applicable | Standard for | non-         |                                    |
|                            | Concentration      | Regulatory    | RCRA Waste | wastewater   | wastewater   | •                                  |
| Constituents               | mg/L               | Limit         | Code       | in mg/l      | in mg/kg     | Comments                           |
| 3,3-Dichlorobenzidine      |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| (Dibenz (a,h) anthracene)  | U (1)              | Standard      | UHC        | 0.055        | 8.2          | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| 2,4-Dichlorophenol         | U (1)              | Standard      | UHC        | 0.044        | 14           | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| Diethylphthalate           | U (1)              | Standard      | UHC        | 0.2          | 28           | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| 2,4-Dimethylphenol         | U (1)              | Standard      | UHC        | 0.036        | 14           | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| Dimethylphthalate          | U (1)              | Standard      | UHC        | 0.047        | 28           | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| Di-n-butylphthalate        | U (1)              | Standard      | UHC        | 0.057        | 28           | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| Di-n-octylphthalate        | U (1)              | Standard      | UHC        | 0.017        | 28           | wastewater treatment standard.     |
| 4,6-Dinitro-2-methylphenol | U (5)              | None          | NA         | NA           | NA           |                                    |
|                            |                    | UHC Treatment |            |              |              | 5 mg/L detection limits exceed the |
| 2,4-Dinitrophenol          | U (5)              | Standard      | UHC        | 0.12         | 160          | wastewater treatment standard.     |
|                            |                    | 0.13 mg/L     |            |              |              |                                    |
|                            |                    | (D030), UHC   |            |              |              |                                    |
|                            |                    | Treatment     |            |              |              | 1 mg/L detection limits exceed the |
| 2,4-Dinitrotoluene         | U <sub>.</sub> (1) | Standard      | D030, UHC  | 0.32         | 140          | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| 2,6-Dinitrotoluene         | U (1)              | Standard      | UHC        | 0.55         | 28           | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| Fluoranthene               | U (1)              | Standard      | UHC        | 0.068        | 3.4          | wastewater treatment standard.     |
|                            |                    | UHC Treatment |            |              |              | 1 mg/L detection limits exceed the |
| Fluorene                   | U (1)              | Standard      | UHC        | 0.059        | 3.4          | wastewater treatment standard.     |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

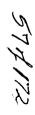
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|                                 |               |                  |            |              | LDR          |                                    |
|---------------------------------|---------------|------------------|------------|--------------|--------------|------------------------------------|
|                                 | ·             |                  |            | LDR          | Treatment    |                                    |
|                                 |               |                  |            | Treatment    | Standard for | •                                  |
|                                 |               | Applicable       | Applicable | Standard for | non-         |                                    |
|                                 | Concentration | Regulatory       | RCRA Waste | wastewater   | wastewater   | •                                  |
| Constituents                    | mg/L          | Limit            | Code       | in mg/l      | in mg/kg     | Comments                           |
|                                 |               | 0.13 (D032),     |            |              |              |                                    |
|                                 |               | UHC Treatment    |            |              | 1            | 1 mg/L detection limits exceed the |
| Hexachlorobenzene               | U (1)         | Standard         | D032, UHC  | 0.055        | 10           | wastewater treatment standard.     |
|                                 |               | 0.5 (D033)UHC    |            |              |              |                                    |
| Hexachlorobutadiene             |               | Treatment        |            |              |              | 1 mg/L detection limits exceed the |
| (Hexachloro-1,3-butadiene       | U (1)         | Standard         | D033, UHC  | 0.055        | 5.6          | wastewater treatment standard.     |
|                                 |               | UHC Treatment    |            |              |              | 1 mg/L detection limits exceed the |
| Hexachlorocyclopentadiene       | U (1)         | Standard         | UHC        | 0.057        | 2.4          | wastewater treatment standard.     |
|                                 |               |                  |            |              |              |                                    |
|                                 |               | 3.0 mg/L (D034), |            |              |              |                                    |
|                                 |               | UHC Treatment    |            |              |              | 1 mg/L detection limits exceed the |
| Hexachloroethane                | U (1)         | Standard         | D034, UHC  | 0.055        | 30           | wastewater treatment standard.     |
|                                 |               | UHC Treatment    |            |              | ·            | 1 mg/L detection limits exceed the |
| Indeno (1,2,3-cd) pyrene        | U (1)         | Standard         | UHC        | 0.0055       | 3.4          | wastewater treatment standard.     |
| Isophorone                      | U (1)         | None             | NA         | NA           | NA           |                                    |
| 2-Methylnaphthalene             | U (1)         | None             | NA         | NA           | NA           |                                    |
|                                 |               | 200 mg/L, UHC    |            |              |              |                                    |
|                                 |               | Treatment        |            |              |              | 1 mg/L detection limits exceed the |
| 2-Methylphenol (o-cresol)       | U (1)         | Standard         | D023, UHC  | 0.11         | 5.6          | wastewater treatment standard.     |
|                                 |               | 200 mg/L, UHC    |            |              |              |                                    |
|                                 |               | Treatment        |            |              |              | 1 mg/L detection limits exceed the |
| 4-Methylphenol (p-cresol)       | U (1)         | Standard         | D025, UHC  | 0.77         | 5.6          | wastewater treatment standard.     |
|                                 |               | UHC Treatment    |            |              | ĺ            | 1 mg/L detection limits exceed the |
| Naphthalene                     | U (1)         | Standard         | UHC        | 0.059        | 5.6          | wastewater treatment standard.     |
|                                 |               | UHC Treatment    |            |              |              | 5 mg/L detection limits exceed the |
| 2-Nitroaniline (o-nitroaniline) | U (5)         | Standard         | UHC        | 0.27         | 14           | wastewater treatment standard.     |

U = Not Detected (Detection limit in parenthesis).

|                                      |               |               |              |              | LDR I        |                                    |
|--------------------------------------|---------------|---------------|--------------|--------------|--------------|------------------------------------|
|                                      |               |               |              | LDR          | Treatment    | •                                  |
|                                      |               |               |              | Treatment    | Standard for |                                    |
|                                      |               | Applicable    | Applicable   | Standard for |              |                                    |
|                                      | Concentration | Regulatory    | RCRA Waste   | wastewater   | wastewater   |                                    |
| Constituents                         | mg/L          | Limit         | Code         | in mg/l      | in mg/kg     | Comments                           |
| 3-Nitroaniline (m-                   | Ing/L         | LIIIIL        | Code         | iii iiig/i   | iii iiig/kg  | Comments                           |
| nitroaniline)                        | U (5)         | None          | NA           | NA           | NA           |                                    |
| miroariinie)                         | 0 (3)         | UHC Treatment | IVA          | INA          | INA          | 5 mg/L detection limits exceed the |
| <br> 4-Nitroaniline (p-nitroaniline) | U (5)         | Standard      | UHC          | 0.028        | 28           | wastewater treatment standard.     |
| + renourante (printourante)          | 0 (0)         | 2.0 (D036) or | 0110         | 0.020        | 20           | wastewater treatment standard.     |
|                                      |               | UHC Treatment |              |              |              | 1 mg/L detection limits exceed the |
| Nitrobenzene                         | U (1)         | Standard      | D036 or UHC  | 0.068        | 14           | wastewater treatment standard.     |
| 2-Nitrophenol (o-                    | 0(1)          | UHC Treatment | D030 01 0110 | 0.000        | 14           | 1 mg/L detection limits exceed the |
| nitrophenol)                         | U (1)         | Standard      | UHC          | 0.028        | 13           | wastewater treatment standard.     |
| 4-Nitrophenol (p-                    | 0 (1)         | UHC Treatment | 0110         | 0.020        | 13           | 5 mg/L detection limits exceed the |
| nitrophenol)                         | U (5)         | Standard      | UHC          | 0.12         | 29           | wastewater treatment standard.     |
| тиа оргионогу                        | 0 (0)         | UHC Treatment | 0110         | 0.12         | 20           | 1 mg/L detection limits exceed the |
| N-nitroso-dimethylamine              | U (1)         | Standard      | UHC          | 0.4          | 2.3          | wastewater treatment standard.     |
| N-nitroso-di-n-propylamine           | <u> </u>      | UHC Treatment | 0.10         | 0.4          | 2.0          | 1 mg/L detection limits exceed the |
| (Di-n-propylnitrosamine)             | U (1)         | Standard      | UHC          | 0.4          | 14           | wastewater treatment standard.     |
| N-nitrosodiphenylamine               |               | UHC Treatment | <u> </u>     | <u> </u>     |              | 1 mg/L detection limits exceed the |
| (Diphenylnitrosamine)                | U (1)         | Standard      | UHC          | 0.92         | 13           | wastewater treatment standard.     |
|                                      |               | 100 mg/L      |              |              |              | Trade Tradition Standard           |
|                                      |               | (D037), UHC   |              |              |              |                                    |
|                                      |               | Treatment     |              |              |              | 5 mg/L detection limits exceed the |
| Pentachlorophenol                    | U (5)         | Standard      | D037, UHC    | 0.089        | 7.4          | wastewater treatment standard.     |
| •                                    | `             | UHC Treatment | ·            |              |              | 1 mg/L detection limits exceed the |
| Phenanthrene                         | U (1)         | Standard      | UHC          | 0.059        | 5.6          | wastewater treatment standard.     |
|                                      |               | UHC Treatment |              |              |              | 1 mg/L detection limits exceed the |
| Phenol                               | U (1)         | Standard      | UHC          | 0.039        | 6.2          | wastewater treatment standard.     |
|                                      |               | UHC Treatment |              |              |              | 1 mg/L detection limits exceed the |
| Pyrene                               | U (1)         | Standard      | UHC          | 0.067        | 8.2          | wastewater treatment standard.     |

U = Not Detected (Detection limit in parenthesis).



| Constituents           | Concentration<br>mg/L | Applicable<br>Regulatory<br>Limit          | Applicable<br>RCRA Waste<br>Code | LDR<br>Treatment<br>Standard for<br>wastewater<br>in mg/l | LDR Treatment Standard for non- wastewater in mg/kg | Comments  |
|------------------------|-----------------------|--|----------------------------------|---|---|---|
| Pyridine               | U (1)                 | 5.0 (D038) or<br>UHC Treatment<br>Standard | D038 or UHC                      | 0.014   | 16  | 1 mg/L detection limits exceed the wastewater treatment standard. |
| Tributylphosphate      | NA                    | None                                       | NA                               | NA  | NA  |   |
| 1,2,4-Trichlorobenzene | U (1)                 | UHC Treatment<br>Standard                  | UHC                              | 0.055   | 19  | 1 mg/L detection limits exceed the wastewater treatment standard. |
| 2,4,5-Trichorophenol   | U (5)                 | 44 (D041), UHC<br>Treatment<br>Standard    | D041, UHC                        | 0.18  | 7.4   | 5 mg/L detection limits exceed the wastewater treatment standard. |
| 2,4,6-Trichlorophenol  | U (1)                 | 2 (D042), UHC<br>Treatment<br>Standard     | D042, UHC                        | 0.035   | 7.4   | mg/L detection limits exceed the wastewater treatment standard.   |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

| ·            |               |                  |            | <u> </u>     | LDR          |  |
|--------------|---------------|------------------|------------|--------------|--------------|--|
|              |               |                  |            | LDR          | Treatment    |  |
|              |               |                  |            | Treatment    | Standard for | •  |
|              |               | Applicable       | Applicable | Standard for | non-         |  |
|              | Concentration | Regulatory       | RCRA Waste | wastewater   | wastewater   |  |
| Constituents | mg/L          | Limit            | Code       | in mg/L      | in mg/kg     | Comments   |
| Aluminum     | U (0.2)       | NA               | NA         | NA           | NA           |  |
|              |               | UHC Treatment    |            |              | 1.15 mg/L    | This detected concentration was rejected.                        |
| Antimony     | 0.215 R       | Standard         | UHC        | 1.9          | TCLP         | Therefore, waste must be re-analyzed to determine concentration. |
|              |               | 5.0 (D004), UHC  |            |              |              |  |
|              |               | Treatment        |            |              | 5.0 mg/L     |  |
| Arsenic      | 0.005 B       | Standard         | D004, UHC  | 1.4          | TCLP         |  |
|              |               |                  |            |              |              |  |
|              |               | 100 mg/l (D005), |            |              |              |  |
|              |               | UHC Treatment    |            |              | 21 mg/L      |  |
| Barium       | U (0.163) B J | Standard         | D005, UHC  | 1.2          | TCLP         |  |
|              |               | UHC Treatment    |            |              | 1.22 mg/L    |  |
| Beryllium    | U (0.0036) B  | Standard         | UHC        | 0.82         | TCLP         |  |
| Boron        | 2.17          | NA               | NA         | NA           | NA           |  |
|              |               |                  |            |              | 0.11 mg/L    |  |
| Cadmium      | U (0.0044)    | 1.0 (D006), UHC  |            | 0.69         | TCLP         |  |
| Calcium      | 6.49          | NA NA            | NA         | NA           | NA           | · · · · · · · · · · · · · · · · · · ·                            |
|              |               | 5 (D007), UHC    |            |              |              |  |
|              |               | Treatment        |            |              | 0.60 mg/L    |  |
| Chromium     | U (0.039)     | Standards        | D007, UHC  | 2.77         | TCLP         |  |
| Cobalt       | U (0.033)     | NA NA            | NA         | NA           | NA           |  |
| Copper       | U (0.01)      | NA               | NA         | NA           | NA           |  |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

B = Reported value is > to instrument detection limit but < contract required detection limit.

N = Spiked Sample recovery not within control limits.

R = Result rejected.

INEEL V-2 Liquid, Inorganic Analysis

|              |               |                      |            | T            | LDR          |          |
|--------------|---------------|----------------------|------------|--------------|--------------|----------|
|              |               |                      |            | LDR          | Treatment    |          |
|              |               |                      |            | Treatment    | Standard for |          |
|              |               | Applicable           | Applicable | Standard for | 1            |          |
|              | Concentration | Regulatory           | RCRA Waste | wastewater   | wastewater   |          |
| Constituents | mg/L          | Limit                | Code       | in mg/L      | in mg/kg     | Comments |
| Iron         | 0.437         | NA                   | NA         | NA NA        | NA           |          |
|              |               | 5.0 (D008), UHC      |            |              |              |          |
|              |               | Treatment            |            |              | 0.75 mg/L    |          |
| Lead         | U (0.0036) N  | Standard             | D008, UHC  | 0.69         | TCLP         |          |
| Magnesium    | 14.6          | NA                   | NA         | NA           | NA           |          |
| Manganese    | 0.475         | NA                   | NA         | NA           | NA           |          |
|              |               | 0.2 (D009), UHC      |            |              |              |          |
|              | ·             | Treatment            |            |              | 0.025 mg/L   |          |
| Mercury      | U (0.001)     | Standard             | D009, UHC  | 0.15         | TCLP         |          |
|              |               | <b>UHC Treatment</b> |            |              | 11 mg/L      |          |
| Nickel       | 0.457         | Standard             | UHC        | 3.98         | TCLP         |          |
| Potassium    | 276           | NA                   | NA         | NA           | NA           |          |
|              |               |                      |            |              | 5.7 mg/L     |          |
| Selenium     | U (0.005) J   | 1 (D010)             | D010       | 0.82         | TCLP         |          |
| Silicon      | 7.7           | NA                   | NA         | NA           | NA           |          |
|              |               | 5 (D011), UHC        |            |              |              |          |
|              |               | Treatment            |            |              | 0.14 mg/L    |          |
| Silver       | U (0.0024)    | Standard             | D011, UHC  | 0.43         | TCLP         |          |
| Sodium       | 408           | NA                   | NA         | NA           | NA           |          |
|              |               | UHC Treatment        |            |              | 0.2 mg/L     |          |
| Thallium     | U (0.004) J   | Standard             | UHC        | 1.4          | TCLP         |          |
| Tin          | NA            | NA                   | NA         | NA           | NA           |          |
| Vanadium     | U (0.0486) B  | NA                   | NA         | NA           | NA           |          |
| Zinc         | 0.164         | NA                   | NA         | NA           | NA           |          |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

B = Reported value is > to instrument detection limit but < contract required detection limit.

N = Spiked Sample recovery not within control limits.

R = Result rejected.

#### INEEL V-2 Liquid, Miscellaneous Analysis

|                        |               |                   |            |              | LDR          |  |
|------------------------|---------------|-------------------|------------|--------------|--------------|--|
|                        |               |                   |            | LDR          | Treatment    |  |
|                        |               |                   |            | Treatment    | Standard for |  |
|                        |               | <b>Applicable</b> | Applicable | Standard for | non-         |  |
|                        | Concentration | Regulatory        | RCRA Waste | wastewater   | wastewater   | ·  |
| Constituents           | mg/L          | Limit             | Code       | in mg/L      | in mg/kg     | Comments                                   |
| Bromide                | 1.22          | None              | NA         | NA           | NA           |  |
| Chloride               | 136           | None              | NA         | NA           | NA           |  |
| Fluoride               | U (5)         | None              | NA         | NA           | NA           |  |
| Nitrate                | U (2)         | None              | NA         | NA           | NA           |  |
| Nitrite                | U (4)         | None              | NA         | NA           | NA           |  |
| Phosphate              | 23.3          | None              | NA         | NA           | NA           |  |
| Sulfate                | 18            | None              | NA         | NA           | NA           |  |
|                        |               |                   |            |              |              | Wastewater is defined as < 1% TOC and < 1% |
| Total Organic Carbon   | 105           | < 1%              | NA         | NA           | NA           | TSS.                                       |
| Total Halides          | 74.2          | NA                | NA         | NA           | NA           |  |
|                        |               |                   |            |              |              | Wastewater is defined as < 1% TOC and < 1% |
| Total Suspended Solids | 26.7          | <1%               | NA         | NA           | NA           | TSS.                                       |
| Oil & Grease           | U (1)         | None              | NA         | NA           | NA           |  |

U = Not Detected (Detection limit in parenthesis).

TOC = 105 mg/L = 1.05E-2 %, which is < 1%.TSS = 26.7 mg/L = 2.67 E-3% which is < 1%. Therefore, liquid phase is considered a wastewater.

|                            | Concentration | Applicable<br>Regulatory                               | Applicable<br>TSCA/RCRA | LDR<br>Treatment<br>Standard for<br>wastewater | wastewater |  |
|----------------------------|---------------|--|-------------------------|--|------------|--|
| Constituents               | mg/L          | Limit  | Waste Code              | in mg/L  | in mg/kg   | Comments   |
| Aroclor-1016               | U (0.1)       |  | None                    | NA   | NA         |  |
| Aroclor-1221               | U (0.2)       | NA   | NA                      | NA   | NA         |  |
| Aroclor-1232               | U (0.1)       | NA   | NA                      | NA   | NA         |  |
| Aroclor-1242               | U (0.1)       | NA   | NA                      | NA   | NA         |  |
| Aroclor-1248               | U (0.1)       | NA   | NA                      | NA   | NA         |  |
| Aroclor-1254               | U (0.1)       | NA   | NÁ                      | NA   | NA         |  |
| Aroclor-1260               | U (0.1)       | NA   | NA                      | NA   | NA         |  |
|                            |               | 50 mg/kg for<br>TSCA, UHC<br>Treatment<br>Standard for |                         |  |            | This waste is not regulated under TSCA and it is below the UHC treatment standard level. Therefore, no PCB treatment is required prior |
| <b>Total Concentration</b> | U (0.1)       | RCRA   | None                    | 0.1  | 10         | to disposal.   |

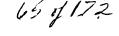
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# INEEL OU 1-10 Site TSF-09, Tank V-2 Preliminary Sludge Chemical Characterization Summary

- The sludge phase of the waste associated with this tank is considered a non-wastewater for purposes of complying with the Land Disposal Restrictions. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data associated with this waste.
- Hazardous Waste Determination: Highest concentrations detected are reported.

The RCRA Waste codes that apply to this waste are as follows:

| Constituent                  | Concentration Detected in Waste (mg/kg)   | Regulatory<br>Limit<br>(mg/L)                                    | Applicable<br>Waste<br>Code  | LDR Treatment Standard for non- wastewater (mg/kg) |
|------------------------------|---|--|------------------------------|--|
| Antimony                     | 1.3 mg/L (theoretical)                    | 1.15   | UHC                          | 1.15 mg/L  |
| Cadmium                      | 1.2 mg/L                                  | 1.0 (0.11 as<br>a UHC)   | D006                         | 0.11 mg/L  |
| Chromium                     | 0.76 mg/L                                 | 0.6 as UHC   | UHC                          | 0.6 mg/L   |
| Nickel                       | 46.2 mg/L (theoretical)                   | 11   | UHC                          | 11 mg/L  |
| Bis(2-ethyl hexyl) phthalate | 1500-7000                                 | 28 mg/kg as<br>a UHC   | UHC                          | 28   |
| Chloroethane                 | ND @ 10                                   | 6 mg/kg  | UHC                          | 6  |
| 1,2-<br>Dichlorobenzene      | 30 J                                      | None if F-<br>listed, or 6<br>mg/kg as a<br>UHC                  | UHC                          | 6  |
| 2,4-Dinitrotoluene           | ND @ 170 or<br>8.5 mg/L<br>(theoretical)  | 0.13   | D030                         | 140  |
| Hexachloroethane             | ND @ 170 or<br>8.5 mg/L<br>(theoretical)  | 3.0  | D034                         | 30   |
| Pentachlorophenol            | ND @ 870 or<br>43.5 mg/L<br>(theoretical) | 100  | D037                         | 7.4  |
| Pyridine                     | ND @ 170 or<br>8.5 mg/L<br>(theoretical)  | 5.0  | D038                         | 16   |
| Tetrachloroethene            | 510 J ( TCLP<br>2.387 mg/L)               | 0.7 mg/L as<br>a D039,<br>None if F-<br>listed, or 6<br>as a UHC | D039                         | 6  |
| Trichloroethene              | 5.9 J D (TCLP<br>0.7 mg/L J D)            | 0.5 mg/L as<br>a D040,<br>None if F-<br>listed, or 6<br>as a UHC | F001                         | 6  |
| Vinyl Chloride               | ND @ 0.6 or<br>ND @ 0.5 mg/L              | 0.2  | D043                         | 6  |
| Total PCB<br>Concentration   | 260 D                                     | 50 mg/kg<br>for TSCA<br>and UHC<br>Treatment                     | TSCA<br>Regulated<br>and UHC | < 50 for TSCA<br>and10 for RCRA                    |



| Standard for |  |
|--------------|--|
| RCRA         |  |

Note: SVOCs are also identified to be present as UHCs. See write-up below.

• **UHC** = Underlying Hazardous Constituent.

**D** = Dilution factor of 1000, Dilution factor of 50 for TCLP analysis, and Dilution factor of 10 for PCB analysis.

J = Estimated Value.

**ND** = Not Detected

- The inorganic analysis performed on the sludge phase of this waste was reported in a total concentration (mg/kg) and in a TCLP extract concentration (mg/L). Although high total concentrations are reported in this waste, the TCLP extract concentrations are typically below the regulatory limits as a characteristic waste. For the other inorganic analyses identified as UHCs, only total concentrations are reported. Therefore, to evaluate the regulatory status of these constituents in this solid, the total constituent concentration is divided by 20, creating the maximum theoretical leachate concentration (as referenced in the table above), which is then compared to the applicable regulatory limit. The division factor reflects the 20-to-1 ratio of extraction fluid to solid used in the TCLP test method.
- Chloroethane reported a detection limit of 10 mg/kg, however the non-wastewater treatment standard is 6 mg/kg. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituent(s) are not present in the waste. However, since this waste will not be reanalyzed for Chloroethanethis constituent is assumed to be present in the waste at the detection limit value.

Trichloroethene was detected at 0.7 mg/L based on TCLP analysis. This concentration exceeds the characteristic limit. However, the LDR non-wastewater treatment standard for Trichloroethene is 6 mg/kg, a total concentration value. The total concentration of Trichloroethene is 5.9 mg/kg, albeit an estimated value, which is below the non-wastewater treatment standard value of 6 mg/kg. Since the total concentration is an estimated value based on the laboratory reporting values for this constituent, Trichloroethene is conservatively identified as requiring LDR treatment.

Vinyl chloride was not detected in the sludge at 0.6 mg/kg and at 0.5 mg/L based on TCLP analysis. The characteristic limit for vinyl chloride is 0.2 mg/L. The TCLP detection limit exceeds this characteristic limit, therefore it is uncertain if this waste exceeds the toxicity characteristic based on TCLP analysis. However, the treatment standard for vinyl chloride, either as a toxicity characteristic or as an underlying hazardous constituent (UHC), is 6 mg/kg and vinyl chloride was not detected at 0.6 mg/kg. Based on this information vinyl chloride is conservatively assumed to be present as a characteristic constituent, however no treatment for purposes of complying with the Land Disposal Restrictions (LDRs) would be required.

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- The detection limits for a majority of the SVOCs were above the non-wastewater treatment standards, as well as the characteristic limits for several constituents. Again as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be re-analyzed for these constituents, the following SVOCs are also assumed to be present in the waste at the detection limit value(see attached tables for concentrations) and are identified as underlying hazardous constituents (The table above identifies only those SVOCs with detection limits exceeding characteristic limits.): Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, 2,4-Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Indeno(1,2,3-cd)pyrene, 2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-din-propylamine, N-nitrosodiphenylamine, Phenanthrene, Phenol, Pyrene, 1,2,4-Trichlorobenzene, 2,4,5-Trichlorophenol, and 2,4,6-Trichlorophenol.
- Based on a review of the analytical data provided by INEEL, this waste is considered both characteristic, with underlying hazardous constituents and a listed hazardous waste as well as TSCA regulated due to the presence of PCBs > 50 ppm. This waste requires incineration based on 40 CFR 761 for the presence of PCBs and any form of thermal treatment for the presence of the organic constituents, followed-by stabilization of the ash for the inorganic constituents.

#### • Recommendation:

Since this waste will require some form of thermal treatment due to the presence of organics, the waste acceptance criteria of possible treatment facilities should also be considered.

|                      |                           |  | - · · · · · · · · · · · · · · · · · · · |              | LDR          |          |
|----------------------|---------------------------|--|---|--------------|--------------|----------|
|                      |                           |  |   | LDR          | Treatment    |          |
|                      | :                         |  |   | Treatment    | Standard for |          |
|                      |                           | Applicable   | Applicable                              | Standard for |              |          |
|                      | Concentration             | Regulatory   | RCRA Waste                              | wastewater   | wastewater   | ,        |
| Constituents         | mg/kg                     | Limit  | Code                                    | in mg/L      | in mg/kg     | Comments |
|                      |                           | Treatment standard limit if                          |   |              |              |          |
| Acetone              | U (0.6) J                 | UHC  | UHC                                     | 0.28         | 160          |          |
|                      |                           | 0.5 mg/l (D018)                                      |   |              |              |          |
|                      | U (0.6) J<br>U (0.5) J D, | or treatment standard limit if                       |   |              |              |          |
| Benzene              | TCLP                      | UHC  | D018 or UHC                             | 0.14         | 10           |          |
|                      |                           | Treatment  |   |              |              |          |
|                      |                           | standard limit if                                    |   |              |              |          |
| Bromodichloromethane | U (0.6) J                 | UHC  | UHC                                     | 0.35         | 15           |          |
|                      |                           | Treatment  |   |              |              |          |
| Bromoform            |                           | standard limit if                                    |   |              |              |          |
| (Tribromomethane)    | U (0.6) J                 | UHC  | UHC                                     | 0.63         | 15           |          |
|                      |                           | Treatment standard limit if                          |   |              |              |          |
| Bromomethane         | U (0.6) J                 | UHC  | UHC                                     | 0.11         | 15           |          |
|                      |                           | 200 mg/l (D035)<br>or treatment<br>standard limit if |   |              |              |          |
| 2-Butanone (MEK)     | U (0.6) J                 | UHC  | D035 or UHC                             | 0.28         | 36           |          |
|                      |                           | Treatment standard limit if                          |   |              |              |          |
| Carbon disulfide     | U (0.6) J                 | UHC  | UHC                                     | 3.8          | 4.8 mg/L     |          |



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J = Estimated Value

D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.

INEEL V-2 Sludge, VOC Analysis

|                        | <u> </u>      | 1                   |               | T            | LDR          |  |
|------------------------|---------------|---------------------|---------------|--------------|--------------|--|
|                        |               |                     |               | LDR          | Treatment    |  |
|                        |               |                     |               | Treatment    | Standard for |  |
|                        |               | Applicable          | Applicable    | Standard for | <b>f</b>     |  |
|                        | Concentration |                     | RCRA Waste    | 1            |              |  |
| Constituents           |               | Regulatory<br>Limit |               | wastewater   | wastewater   | <b>2</b>                                     |
| Constituents           | mg/kg         | LIIIIL              | Code          | in mg/L      | in mg/kg     | Comments                                     |
|                        |               | 0.5 mg/L (D019)     |               |              |              |  |
|                        | U (0.6) J     | or treatment        |               |              |              |  |
|                        | U (0.5) J D,  | standard limit if   |               |              |              |  |
| Carbon tetrachloride   | TCLP          | UHC                 | D010 or UHC   | 0.057        | 6            |  |
| Carbon tetrachionide   | TOLF          | UNC                 | D019 or UHC   | 0.057        | 6            |  |
|                        |               | 100 mg/l (D021)     |               |              |              |  |
|                        | U (0.6) J     | or treatment        |               |              |              |  |
|                        | U (0.5) J D,  | standard limit if   |               | •            |              |  |
| Chlorobenzene          | TCLP          | UHC                 | D004 av 11110 | 0.057        |              |  |
| Chlorobenzene          | TCLP          | Treatment           | D021 or UHC   | 0.057        | 6            |  |
|                        |               |                     |               |              |              | T. 40 // L. // H. H.                         |
| Chloroethane           | 11 (40)       | standard limit if   |               | 0.07         |              | The 10 mg/kg detection limit exceeds the nww |
| Chioroethane           | U (10)        | UHC                 | UHC           | 0.27         | 6            | treatment standard.                          |
|                        | 11 (0.0)      | 6 mg/l (D022) or    |               |              |              |  |
|                        | U (0.6) J     | treatment           |               |              |              |  |
| Oblanafana             | U (0.5) J D,  | standard limit if   | 5000 11110    |              | _            |  |
| Chloroform             | TCLP          | UHC                 | D022 or UHC   | 0.046        | 6            |  |
|                        |               | Treatment           |               |              |              |  |
|                        |               | standard limit if   |               |              |              |  |
| Chloromethane          | U (0.6) J     | UHC                 | UHC           | 0.19         | 30           |  |
| <b>  -</b>             |               | Treatment           |               |              |              |  |
| Dibromochloromethane   |               | standard limit if   |               |              |              |  |
| (Chlorodibromomethane) | U (0.6) J     | UHC                 | UHC           | 0.057        | 15           |  |
|                        |               | Treatment           |               |              |              |  |
|                        |               | standard limit if   |               |              |              |  |
| 1,1-Dichloroethane     | U (0.6) J     | UHC                 | UHC           | 0.059        | 6            |  |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.

|  | T             |                          | <u> </u>    | T            | LDR          |          |
|--|---------------|--------------------------|-------------|--------------|--------------|----------|
|  |               |                          |             | LDR          | Treatment    |          |
|  |               |                          |             | Treatment    | Standard for |          |
|  |               | Applicable               | Applicable  | Standard for |              |          |
|  | Concentration | Regulatory               | RCRA Waste  | wastewater   | wastewater   |          |
| Constituents                           | mg/kg         | Limit                    | Code        |              |              | Comments |
| Constituents                           | ilig/kg       | LIIII                    | Code        | in mg/L      | in mg/kg     | Comments |
|  |               | 0.5 mg/l (D028),         |             |              |              |          |
|  | U (0.6) J     | or treatment             |             |              |              |          |
|  | U (0.5) J D,  | standard limit if        |             |              |              |          |
| 1,2-Dichloroethane                     | TCLP          | UHC                      | D028 or UHC | 0.21         | 6            |          |
|  |               | 0.7 mg/l (D029)          |             |              |              |          |
|  | U (0.6) J     | or treatment             |             |              |              |          |
|  | U (0.5) J D,  | standard limit if        |             |              |              |          |
| 1,1-Dichloroethene                     | TCLP          | UHC                      | D029 or UHC | 0.025        | 6            | •        |
|  |               | Treatment                |             |              |              |          |
|  |               | standard limit if        |             |              |              | ·        |
| trans-1,2-Dichloroethene               | U (0.6) J     | UHC                      | UHC         | 0.054        | 30           |          |
|  |               | Treatment                |             |              |              |          |
|  |               | standard limit if        |             |              |              |          |
| 1,2-Dichloropropane                    | U (0.6) J     | UHC                      | UHC         | 0.85         | 18           |          |
|  |               | Treatment                |             |              |              |          |
|  |               | standard limit if        |             |              |              |          |
| cis-1,3-Dichloropropene                | U (0.6) J     | UHC                      | UHC         | 0.036        | 18           |          |
| 1                                      |               | Treatment                |             |              |              |          |
| trans-1,3-                             | 11 (0.0)      | standard limit if        |             |              | 40           |          |
| Dichloropropene                        | U (0.6) J     | UHC                      | UHC         | 0.036        | 18           |          |
|  |               | Treatment                |             |              |              |          |
| Ethylhonzone                           | 11(0.6)       | standard limit if<br>UHC | UHC         | 0.057        | 10           |          |
| Ethylbenzene                           | U (0.6) J     | UNC                      | UNC         | 0.057        | 10           |          |
| 2-Hexanone (Methyl n-<br>butyl ketone) | 11(0.6) 1     | NA                       | NA          | NA           | NA           |          |
| Dutyl ketolie)                         | U (0.6) J     | INA                      | INA         | I INA        | I NA         |          |

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J = Estimated Value

D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.

|                       | T             | -                 |             |              | LDR          |   |
|-----------------------|---------------|-------------------|-------------|--------------|--------------|---|
|                       |               |                   |             | LDR          | Treatment    |   |
|                       |               |                   |             | Treatment    | Standard for |   |
|                       |               | Applicable        | Applicable  | Standard for | non-         |   |
|                       | Concentration | Regulatory        | RCRA Waste  | wastewater   | wastewater   |   |
| Constituents          | mg/kg         | Limit             | Code        | in mg/L      | in mg/kg     | Comments                                    |
|                       |               | Treatment         |             |              |              |   |
| 4-Methyl-2-pentanone  |               | standard limit if |             |              |              |   |
| (MIK)                 | U (0.6) J     | UHC               | UHC         | 0.14         | 33           |   |
|                       |               | Treatment         |             |              |              |   |
|                       |               | standard limit if |             |              |              |   |
| Methylene chloride    | U (0.6) J     | UHC               | UHC         | 0.089        | 30           |   |
| Styrene               | U (0.6) J     | NA                | NA          | NA           | NA           |   |
|                       |               | Treatment         |             |              |              |   |
| 1,1,2,2-              |               | standard limit if |             |              |              |   |
| Tetrachloroethane     | U (0.6) J     | UHC               | UHC         | 0.057        | 6            |   |
|                       |               |                   |             |              |              | 2.3 mg/L is below the characteristic limit. |
|                       |               | 0.7 mg/l (D039)   |             |              |              | However, the 510 mg/kg concentration        |
|                       | 510 J         | or treatment      |             |              |              | exceeds the nww treatment standard.         |
|                       | 2.387 mg/L J  | standard limit if |             |              |              | Therefore, it may be either F-listed or a   |
| Tetrachloroethene     | D, TCLP       | UHC               | D039 or UHC | 0.056        | 6            | UHC, requiring treatment.                   |
|                       |               | Treatment         |             |              |              |   |
|                       |               | standard limit if |             |              |              |   |
| Toluene               | U (0.6) J     | UHC               | UHC         | 0.08         | 10           |   |
|                       |               | Treatment         |             |              |              |   |
|                       |               | standard limit if |             |              |              |   |
| 1,1,1-Trichloroethane | U (0.6) J     | UHC               | UHC         | 0.054        | 6            |   |
|                       |               | Treatment         |             |              |              |   |
|                       |               | standard limit if |             |              |              |   |
| 1,1,2-Trichloroethane | U (0.6) J     | UHC               | UHC         | 0.054        | 6            |   |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.

| Constituents                 | Concentration<br>mg/kg            | Applicable<br>Regulatory<br>Limit                           | Applicable<br>RCRA Waste<br>Code | LDR<br>Treatment<br>Standard for<br>wastewater<br>in mg/L | LDR Treatment Standard for non- wastewater in mg/kg | Comments   |
|------------------------------|-----------------------------------|---|----------------------------------|---|---|--|
| Trichloroethene              | 5.9 J D<br>0.7 mg/L J D,<br>TCLP  | None if listed  | F001                             | 0.054   | 6   | 0.7 mg/L exceeds the characteristic limit, however the total concentration is below the non-wastewater treatment standard.  Therefore no treatment is required regardless if it is D040, F002 or UHC.                                  |
| Vinyl chloride               | U (0.6) J<br>U (0.5) J D,<br>TCLP | 0.2 mg/l (D043),<br>orTreatment<br>standard limit if<br>UHC | D043 or UHC                      | 0.27  | 6   | 0.5 mg/L detection limit for TCLP exceeds the characteristic limit of 0.2 mg/L. However, the 0.6 mg/kg detection limit is below the treatment standard. Therefore, no treatment would be required regardless if it is a D043 or a UHC. |
| Xylene (ortho)               | U (0.6) J                         | NA NA   | NA                               | NA  | NA NA   | ii it is a DU43 Of a Offic.  |
| Xylene (total meta and para) | U (0.6) J                         | Treatment<br>standard limit if<br>UHC                       | UHC                              | 0.32  | 30  |  |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.

05/15/2001 Tank V-2 TSF-09, Revision 1

INEEL V-2 Sludge, SVOC analysis.

| LDR<br>Treatment<br>Standard for | wastewater<br>in mg/kg Comments | 170 mg/kg     |              | 3.4 treatment standard.  | 3.4 treatment standard.   | 170 mg/kg detection limit exceeds the nww | 3.4 treatment standard. | 170 mg/kg o   | 3.4 treatment standard. | 170 mg/kg detection limit exceeds the nww | 6.8 treatment standard. | 170 mg/kg detection limit exceeds the nww | 1.8 treatment standard. | 170 mg/kg detection limit exceeds the nww | 6.8 treatment standard. | NA           | NA             | 170 mg/kg detection limit exceeds the nww | 28 treatment standard. | 170 mg/kg detection limit exceeds the nww | 7.2 treatment standard. | 170 mg/kg detection limit exceeds the nww | 6 treatment standard.    | 170 mg/kg detection limit exceeds the nww |
|----------------------------------|---------------------------------|---------------|--------------|--------------------------|---------------------------|---|-------------------------|---------------|-------------------------|---|-------------------------|---|-------------------------|---|-------------------------|--------------|----------------|---|------------------------|---|-------------------------|---|--------------------------|---|
|                                  | wastewater   w                  |               | ecu.u        | 0.059                    | 0.059                     |   | 0.059                   |               | 0.061                   |   | 0.11                    |   | 0.0055                  |   | 0.11                    | ΑΝ           | NA             |   | 0.017                  |   | 0.036                   |   | 0.033                    | 1   |
| Applicable                       | RCRA Waste<br>Code              | C 17          | 200          | UHC                      | UHC                       |   | UHC                     |               | CHC                     |   | UHC                     |   | OHC                     |   | OHC                     | ΑA           | NA             |   | UHC                    |   | UHC                     |   | UHC                      | <u>.</u>                                  |
| Applicable                       | Regulatory<br>Limit             | UHC Treatment | Standard     | UHC Treatment   Standard | UHC Treatment<br>Standard | UHC Treatment                             | Standard                | UHC Treatment | Standard                | UHC Treatment                             | Standard                | UHC Treatment                             | Standard                | UHC Treatment                             | Standard                | None         | None           | UHC Treatment                             | Standard               | UHC Treatment                             | Standard                | UHC Treatment                             | Standard                 | UHC Treatment                             |
|                                  | Concentration<br>mg/kg          |               | 0/1/0)       | U (170)                  | U (170)                   |   | U (170)                 |               | U (170)                 |   | U (170)                 |   | U (170)                 |   | U (170)                 | U (870)      | U (870)        |   | U (170)                | -   | U (170)                 |   | U (170)                  | (020)                                     |
|                                  | Constituents                    | Acceptions    | Acenaphinene | Acenaphthylene           | Anthracene                |   | Benzo (a) anthracene    |               | Benzo (a) pyrene        |   | Benzo (b) fluoranthene  |   | Benzo (g,h,l) perylene  |   | Benzo (k) fluoranthene  | Benzoic acid | Benzyl alcohol |   | Butylbenzylphthalate   | Bis (2-                                   | chloroethoxy)methane    |   | Bis (2-chloroethyl)ether | odto (hacraccicroldo 6) of                |

U = Not Detected (Detection limit in parenthesis). J = Estimated Value

INEEL V-2 Sludge, SVOC analysis.

|                             |               |                      |            | I            | LDR          |   |
|-----------------------------|---------------|----------------------|------------|--------------|--------------|---|
|                             |               |                      |            | LDR          | Treatment    |   |
|                             |               |                      |            | Treatment    | Standard for |   |
|                             |               | Applicable           | Applicable | Standard for | non-         |   |
|                             | Concentration | Regulatory           | RCRA Waste | wastewater   | wastewater   | ,   |
| Constituents                | mg/kg         | Limit                | Code       | in mg/l      | in mg/kg     | Comments                                  |
|                             |               | •                    |            |              |              | 1500-7000 mg/kg concentration exceeds     |
| Bis (2-ethylhexyl)          |               | <b>UHC Treatment</b> |            |              |              | the nww treatment standard. Therefore     |
| phthalate                   | 1500-7000     | Standard             | UHC        | 0.28         | 28           | this constituent is a UHC.                |
|                             |               | UHC Treatment        |            |              |              | 170 mg/kg detection limit exceeds the nww |
| 4-Bromophenyl-phenylether   | U (170)       | Standard             | UHC        | 0.055        | 15           | treatment standard.                       |
| Carbozole (or Carbazole)    | U (170)       | None                 | NA         | NA           | NA           |   |
|                             | :             | UHC Treatment        |            |              |              | 170 mg/kg detection limit exceeds the nww |
| Chrysene                    | U (170)       | Standard             | UHC        | 0.059        | 3.4          | treatment standard.                       |
| 4-Chloroaniline (p-         |               | UHC Treatment        |            |              |              | 170 mg/kg detection limit exceeds the nww |
| chloroaniline)              | U (170)       | Standard             | UHC        | 0.46         | 16           | treatment standard.                       |
| 4-Chloro-3-Methylphenol (p- |               | UHC Treatment        |            |              |              | 170 mg/kg detection limit exceeds the nww |
| chloro-m-cresol)            | U (170)       | Standard             | UHC        | 0.018        | 14           | treatment standard.                       |
|                             |               | UHC Treatment        |            |              |              | 170 mg/kg detection limit exceeds the nww |
| 2-Chloronaphthalene         | U (170)       | Standard             | UHC        | 0.055        | 5.6          | treatment standard.                       |
| 4-Chlorophenyl-phenylether  | U (170)       | None                 | NA NA      | NA NA        | NA           |   |
| 4-Chlorophenyi-phenyiether  | 0 (170)       | UHC Treatment        | INA        | INA          | INA          | 170 mg/kg detection limit exceeds the nww |
| 2-Chlorophenol              | U (170)       | Standard             | UHC        | 0.044        | 5.7          | treatment standard.                       |
| 2-Chlorophenol              | 0 (170)       | UHC Treatment        | UNC        | 0.044        | 3.1          | 170 mg/kg detection limit exceeds the nww |
| Dibenz(a,h)anthracene       | U (170)       | Standard             | UHC        | 0.055        | 8.2          | treatment standard.                       |
| Dibenzofuran                | U (170)       | None                 | NA NA      | NA           | NA           | ueaunent standard.                        |
| Dibenzoidian                | 0 (170)       | None                 | 14/4       | I IVA        | 14/4         | 30 mg/kg concentration exceeds the nww    |
|                             |               |                      |            |              |              | treatment standard. Therefore this        |
| 1,2-Dichlorobenzene (o-     |               | UHC Treatment        |            |              |              | constituent is a UHC or an F-listed       |
| dichlorobenzene)            | 30 J          | Standard             | UHC        | 0.088        | 6            | constituent.                              |
| 1,3-Dichlorobenzene (m-     |               | UHC Treatment        |            |              |              | 170 mg/kg detection limit exceeds the nww |
| dichlorobenzene)            | U (170)       | Standard             | UHC        | 0.036        | 6            | treatment standard.                       |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

INEEL V-2 Sludge, SVOC analysis.

|                            |               |                 |                   |              | LDR          |   |
|----------------------------|---------------|-----------------|-------------------|--------------|--------------|---|
|                            | ·             |                 |                   | LDR          | Treatment    |   |
|                            |               |                 |                   | Treatment    | Standard for |   |
|                            |               | Applicable      | <b>Applicable</b> | Standard for | non-         |   |
|                            | Concentration | Regulatory      | <b>RCRA Waste</b> | wastewater   | wastewater   |   |
| Constituents               | mg/kg         | Limit           | Code              | in mg/l      | in mg/kg     | Comments                                      |
|                            |               | 7.5 (D027), UHC |                   |              |              |   |
| 1,4-Dichlorobenzene (p-    |               | Treatment       |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| dichlorobenzene)           | U (170)       | Standard        | D027, UHC         | 0.09         | 6            | treatment standard.                           |
| 3,3-Dichlorobenzidine      |               | UHC Treatment   |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| (Dibenz (a,h) anthracene)  | U (170)       | Standard        | UHC               | 0.055        | 8.2          | treatment standard.                           |
|                            |               | UHC Treatment   | ·                 |              |              | 170 mg/kg detection limit exceeds the nww     |
| 2,4-Dichlorophenol         | U (170)       | Standard        | UHC               | 0.044        | 14           | treatment standard.                           |
| -                          |               | UHC Treatment   |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| Diethylphthalate           | U (170)       | Standard        | UHC               | 0.2          | 28           | treatment standard.                           |
|                            |               | UHC Treatment   |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| 2,4-Dimethylphenol         | U (170)       | Standard        | UHC               | 0.036        | 14           | treatment standard.                           |
| -                          |               | UHC Treatment   |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| Dimethylphthalate          | U (170)       | Standard        | UHC               | 0.047        | 28           | treatment standard.                           |
|                            |               | UHC Treatment   |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| Di-n-butylphthalate        | U (170)       | Standard        | UHC               | 0.057        | 28           | treatment standard.                           |
|                            |               | UHC Treatment   |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
| Di-n-octylphthalate        | U (170)       | Standard        | UHC               | 0.017        | 28           | treatment standard.                           |
| 4,6-Dinitro-2-methylphenol | U (870)       | None            | NA                | NA           | NA           |   |
|                            |               | UHC Treatment   |                   |              |              | 870 mg/kg detection limit exceeds the nww     |
| 2,4-Dinitrophenol          | U (870)       | Standard        | UHC               | 0.12         | 160          | treatment standard.                           |
|                            |               |                 |                   |              |              | 170 mg/kg detection limit exceeds the nww     |
|                            |               |                 |                   |              |              | treatment standard. Using 170 mg/kg, the      |
|                            |               | 0.13 mg/L       |                   |              |              | theoretical leachate value is 8.5 mg/L which  |
|                            |               | (D030), UHC     |                   |              |              | exceeds the characteristic limit. Therefore,  |
|                            |               | Treatment       |                   |              |              | this may be a characteristic constituent or a |
| 2,4-Dinitrotoluene         | U (170)       | Standard        | D030, UHC         | 0.32         | 140          | UHC.  |

U = Not Detected (Detection limit in parenthesis).



|                            |               |                     |            | T            | LDR          |   |
|----------------------------|---------------|---------------------|------------|--------------|--------------|---|
|                            |               |                     |            | LDR          | Treatment    | •   |
|                            |               |                     |            | Treatment    | Standard for |   |
|                            |               | Applicable          | Applicable | Standard for |              |   |
|                            | Concentration | Regulatory          | RCRA Waste | wastewater   | wastewater   |   |
| Constituents               | mg/kg         | Limit               | Code       | in mg/l      | in mg/kg     | Comments                                      |
|                            | 99            | UHC Treatment       |            | g            |              | 170 mg/kg detection limit exceeds the nww     |
| 2,6-Dinitrotoluene         | U (170)       | Standard            | UHC        | 0.55         | 28           | treatment standard.                           |
|                            |               | UHC Treatment       |            |              |              | 170 mg/kg detection limit exceeds the nww     |
| Fluoranthene               | U (170)       | Standard            | UHC        | 0.068        | 3.4          | treatment standard.                           |
|                            |               | UHC Treatment       |            |              |              | 170 mg/kg detection limit exceeds the nww     |
| Fluorene                   | U (170)       | Standard            | UHC        | 0.059        | 3.4          | treatment standard.                           |
|                            |               | 0.13 (D032),        |            |              |              |   |
|                            |               | UHC Treatment       |            |              |              | 170 mg/kg detection limit exceeds the nww     |
| Hexachlorobenzene          | U (170)       | Standard            | D032, UHC  | 0.055        | 10           | treatment standard.                           |
|                            |               | 0.5 (D033)UHC       |            |              |              |   |
| Hexachlorobutadiene        |               | Treatment           |            |              |              | 170 mg/kg detection limit exceeds the nww     |
| (Hexachloro-1,3-butadiene  | U (170)       | Standard            | D033, UHC  | 0.055        | 5.6          | treatment standard.                           |
|                            |               | UHC Treatment       |            |              |              | 170 mg/kg detection limit exceeds the nww     |
| Hexachlorocyclopentadiene  | U (170)       | Standard            | UHC        | 0.057        | 2.4          | treatment standard.                           |
|                            | •             |                     |            |              |              | 170 mg/kg detection limit exceeds the nww     |
|                            |               |                     |            |              |              | treatment standard. Using 170 mg/kg, the      |
|                            |               |                     |            |              |              | theoretical leachate value is 8.5 mg/L which  |
|                            |               | 3.0 mg/L (D034),    |            |              |              | exceeds the characteristic limit. Therefore,  |
| l lava ablava athava       | 11 (470)      | UHC Treatment       | D004 11110 | 0.055        | 20           | this may be a characteristic constituent or a |
| Hexachloroethane           | U (170)       | Standard            | D034, UHC  | 0.055        | 30           | UHC.  |
| Indone (4.2.2 ad) misses   | 11 (470)      | UHC Treatment       | 11110      | 0.0055       | 3.4          | 170 mg/kg detection limit exceeds the nww     |
| Indeno (1,2,3-cd) pyrene   | U (170)       | Standard            | UHC<br>NA  | 0.0055       | 3.4<br>NA    | treatment standard.                           |
| Isophorone                 | U (170)       | None                |            | NA<br>NA     |              |   |
| 2-Methylnaphthalene        | 57 J          | None<br>200 mg/L or | NA         | NA           | NA           |   |
|                            |               | UHC treatment       |            |              |              | 170 mg/kg detection limit exceeds the nww     |
| 2-Methylphenol (o-cresol)  | U (170)       | standard            | D023, UHC  | 0.11         | 5.6          | treatment standard.                           |
| Z-Melityiphenoi (0-cresoi) | L 0 (1/0)     | stariuaru           | D023, UNC  | 1 0.11       | J 3.0        | u caunem Standard.                            |

U = Not Detected (Detection limit in parenthesis).



|                                 | 1             |               |             |              | LDR          |   |
|---------------------------------|---------------|---------------|-------------|--------------|--------------|---|
|                                 |               |               | ٠           | LDR          | Treatment    |   |
| i                               |               |               |             | 1            | Standard for |   |
|                                 |               | Applicable    | Applicable  | Standard for | 1 1          |   |
|                                 | Concentration | Regulatory    | RCRA Waste  | wastewater   | wastewater   |   |
| Constituents                    | mg/kg         | Limit         | Code        | in mg/l      | in mg/kg     | Comments                                  |
| Jonatituents                    | mg/kg         | 200 mg/L or   | Oue         | iii iiig/i   | iii iiig/kg  | Comments                                  |
| ŀ                               |               | UHC treatment |             |              |              | 170 mg/kg detection limit exceeds the nww |
| 4-Methylphenol (p-cresol)       | U (170)       | standard      | D025, UHC   | 0.77         | 5.6          | treatment standard.                       |
| 4-Methylphenol (p-cresor)       | 0 (170)       | UHC Treatment | D025, UHC   | 0.77         | 5.6          | 170 mg/kg detection limit exceeds the nww |
| Naphthalene                     | U (170)       | Standard      | UHC         | 0.059        | 5.6          | treatment standard.                       |
| Naphulalelle                    | 0 (170)       | UHC Treatment | ОПС         | 0.059        | 5.6          |   |
| 2 Nitroppiling (a pitroppiling) | 11 (070)      |               | 11110       | 0.07         | 44           | 870 mg/kg detection limit exceeds the nww |
| 2-Nitroaniline (o-nitroaniline) | U (870)       | Standard      | UHC         | 0.27         | 14           | treatment standard.                       |
| 3-Nitroaniline (m-              | 11 (070)      | A1            | A1.A        |              |              |   |
| nitroaniline)                   | U (870)       | None          | NA          | NA NA        | NA           |   |
| 14.500                          | 11 (070)      | UHC Treatment |             |              |              | 870 mg/kg detection limit exceeds the nww |
| 4-Nitroaniline (p-nitroaniline) | U (870)       | Standard      | UHC         | 0.028        | 28           | treatment standard.                       |
|                                 |               | 2.0 (D036) or |             |              |              |   |
|                                 |               | UHC Treatment |             |              |              | 170 mg/kg detection limit exceeds the nww |
| Nitrobenzene                    | U (170)       | Standard      | D036 or UHC | 0.068        | 14           | treatment standard.                       |
| 2-Nitrophenol (o-               |               | UHC Treatment |             |              |              | 170 mg/kg detection limit exceeds the nww |
| nitrophenol)                    | U (170)       | Standard      | UHC         | 0.028        | 13           | treatment standard.                       |
| 4-Nitrophenol (p-               |               | UHC Treatment |             |              |              | 870 mg/kg detection limit exceeds the nww |
| nitrophenol)                    | U (870)       | Standard      | UHC         | 0.12         | 29           | treatment standard.                       |
|                                 |               | UHC Treatment |             |              |              |   |
| N-nitroso-dimethylamine         | NA            | Standard      | UHC         | 0.4          | 2.3          |   |
| N-nitroso-di-n-propylamine      |               | UHC Treatment |             |              |              | 170 mg/kg detection limit exceeds the nww |
| (Di-n-propylnitrosamine)        | U (170)       | Standard      | UHC         | 0.4          | 14           | treatment standard.                       |
| N-nitrosodiphenylamine          |               | UHC Treatment |             |              |              | 170 mg/kg detection limit exceeds the nww |
| (Diphenylnitrosamine)           | U (170)       | Standard      | UHC         | 0.92         | 13           | treatment standard.                       |

U = Not Detected (Detection limit in parenthesis).

INEEL V-2 Sludge, SVOC analysis.

|                        | 1             |                |                | ·            | LDR          |   |
|------------------------|---------------|----------------|----------------|--------------|--------------|---|
| <u> </u>               |               |                |                | LDR          | Treatment    |   |
|                        |               |                |                | Treatment    | Standard for | ·   |
|                        |               | Applicable     | Applicable     | Standard for | l I          |   |
|                        | Concentration | Regulatory     | RCRA Waste     | wastewater   | wastewater   |   |
| Constituents           | mg/kg         | Limit          | Code           | in mg/l      |              | Comments                                      |
| Constituents           | ilig/kg       | LIIIIL         | Code           | in ing/i     | in mg/kg     | 870 mg/kg detection limit exceeds the nww     |
|                        |               |                |                |              |              |   |
|                        |               | 100 ma/l       |                |              |              | treatment standard. Using 870 mg/kg, the      |
|                        |               | 100 mg/L       |                |              |              | theoretical leachate value is 43.5 mg/L       |
|                        |               | (D037), UHC    |                |              |              | which exceeds the characteristic limit.       |
| Bankarki               | 11 (070)      | Treatment      | 5007 11110     |              |              | Therefore, this may be a characteristic       |
| Pentachlorophenol      | U (870)       | Standard       | D037, UHC      | 0.089        | 7.4          | constituent or a UHC.                         |
| ] _, .,                |               | UHC Treatment  |                |              |              | 170 mg/kg detection limit exceeds the nww     |
| Phenanthrene           | U (170)       | Standard       | UHC            | 0.059        | 5.6          | treatment standard.                           |
|                        |               | UHC Treatment  |                |              |              | 170 mg/kg detection limit exceeds the nww     |
| Phenol                 | U (170)       | Standard       | UHC            | 0.039        | 6.2          | treatment standard.                           |
|                        |               | UHC Treatment  |                |              |              | 170 mg/kg detection limit exceeds the nww     |
| Pyrene                 | U (170)       | Standard       | UHC            | 0.067        | 8.2          | treatment standard.                           |
|                        |               |                |                |              |              | 170 mg/kg detection limit exceeds the nww     |
|                        |               |                |                |              |              | treatment standard. Using 170 mg/kg, the      |
|                        |               |                |                |              |              | theoretical leachate value is 8.5 mg/L which  |
| ·                      |               | 5.0 (D038) or  |                |              |              | exceeds the characteristic limit. Therefore,  |
|                        |               | UHC Treatment  |                |              |              | this may be a characteristic constituent or a |
| Pyridine               | U (170)       | Standard       | D038 or UHC    | 0.014        | 16           | UHC.  |
| Tributylphosphate      | NA            | None           | NA             | NA           | NA           |   |
|                        |               | UHC Treatment  |                |              |              | 170 mg/kg detection limit exceeds the nww     |
| 1,2,4-Trichlorobenzene | U (170)       | Standard       | UHC            | 0.055        | 19           | treatment standard.                           |
|                        |               | 44 (D041), UHC |                |              |              |   |
|                        |               | Treatment      |                |              |              | 870 mg/kg detection limit exceeds the nww     |
| 2,4,5-Trichorophenol   | U (870)       | Standard       | D041, UHC      | 0.18         | 7.4          | treatment standard.                           |
|                        | (3.3)         | 2 (D042), UHC  | = = : ., = : . |              | • • •        | i oddinon oddian                              |
|                        |               | Treatment      |                |              |              | 170 mg/kg detection limit exceeds the nww     |
| 2.4.6-Trichlorophenol  | U (170)       | 1              | D042, UHC      | 0.035        | 7.4          |   |
| 2,4,6-Trichlorophenol  | U (170)       | Standard       | D042, UHC      | 0.035        | 7.4          | treatment standard.                           |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

#### INEEL V-2 Sludge, Inorganic Analysis

|               |                       | <u> </u>         |            | T             | LDR            |  |
|---------------|-----------------------|------------------|------------|---------------|----------------|--|
|               |                       |                  |            | LDR           | Treatment      |  |
|               |                       |                  |            | Treatment     | Standard for   |  |
|               |                       | Applicable       | Applicable | Standard for  |                |  |
|               | Concentration         | Regulatory       | RCRA Waste | wastewater    | wastewater     |  |
| Constituents  | mg/kg                 | Limit            | Code       |               |                | Comments                                       |
| Aluminum      | 7570                  | NA               | NA NA      | in mg/L<br>NA | in mg/kg<br>NA | Comments                                       |
| 7 (G) (1) (G) |                       | 147 (            | 14/ \      | 14/1          | 147            |  |
|               |                       | UHC Treatment    |            |               | 1.15 mg/L      | Using 25.9 mg/kg, the theoretical leachate     |
| Antimony      | 25.9 B                | Standard         | UHC        | 1.9           | TCLP           | value is 1.3 mg/L .                            |
|               | 18.5 B                | 5.0 (D004), UHC  |            |               |                |  |
|               | U (0.0386),           | Treatment        |            |               | 5.0 mg/L       |  |
| Arsenic       | TCLP                  | Standard         | D004, UHC  | 1.4           | TCLP           |  |
|               | 407                   | 400 // (D005)    |            |               |                |  |
|               | 187                   | 100 mg/l (D005), |            |               | 04 "           |  |
| Danis         | 1.15 mg/L             | UHC Treatment    | D005 1110  | 4.0           | 21 mg/L        |  |
| Barium        | TCLP                  | Standard         | D005, UHC  | 1.2           | TCLP           |  |
| Dom dii um    |                       | UHC Treatment    |            | 0.00          | 1.22 mg/L      | Using 22 mg/kg, the theoretical leachate value |
| Beryllium     | 22                    | Standard         | UHC        | 0.82          | TCLP           | is 1.1 mg/L .                                  |
| Boron         | 72 J                  | NA               | NA         | NA            | NA             | 4.0  |
|               | 253 1.2               |                  |            |               | 0.44           | 1.2 mg/L TCLP concentration exceeds both       |
| Cadmium       |                       | 4.0 (0000) 11110 | D000 11110 | 0.00          | 0.11 mg/L      | the characteristic limit and the nww           |
|               | mg/L, TCLP<br>38600 D | 1.0 (D006), UHC  | D006, UHC  | 0.69          | TCLP           | treatment standard limit.                      |
| Calcium       | 30000 D               | NA               | NA         | NA            | NA             |  |
|               |                       |                  |            |               |                | Using 0.76 mg/L concentration this waste       |
|               |                       | 5 (D007), UHC    |            |               |                | is below the characteristic limit, however i   |
|               | 1680 0.76             | l , , ,          |            |               | 0.60 mg/L      | exceeds the nww treatment standard.            |
| Chromium      | mg/L TCLP             | Standards        | D007, UHC  | 2.77          | TCLP           | Therefore, this constituent is a UHC.          |
| Cobalt        | 7.41 B                | NA               | NA         | NA            | NA             |  |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

B = Reported value is > to instrument detection limit but < contract required detection limit.

D = Dilution Factor of 10.

#### INEEL V-2 Sludge, Inorganic Analysis

|              |                         |  |                 |              | LDR                           |   |
|--------------|-------------------------|--|-----------------|--------------|-------------------------------|---|
|              |                         |  |                 | LDR          | Treatment                     |   |
|              |                         |  |                 | Treatment    | Standard for                  |   |
|              |                         | Applicable   | Applicable      | Standard for | non-                          |   |
|              | Concentration           | Regulatory   | RCRA Waste      | wastewater   | wastewater                    | `   |
| Constituents | mg/kg                   | Limit  | Code            | in mg/L      | in mg/kg                      | Comments  |
| Copper       | 926                     | NA   | NA              | NA           | NA NA                         |   |
| Iron         | 22400                   | NA   | NA              | NA           | NA                            |   |
|              |                         | 5.0 (D008), UHC                                    |                 |              |                               |   |
|              | 1550 0.052              |  |                 |              | 0.75 mg/L                     |   |
| Lead         | mg/L, TCLP              | Standard   | D008, UHC       | 0.69         | TCLP                          |   |
| Magnesium    | 7030 D                  | NA   | NA              | NA           | NA                            |   |
| Manganese    | 27100 D                 | NA   | NA              | NA           | NA                            |   |
|              | 612                     | 0.2 (D009), UHC                                    |                 |              |                               |   |
|              | 0.00018 mg/L,           | Treatment  |                 |              | 0.025 mg/L                    |   |
| Mercury      | TCLP                    | Standard   | D009, UHC       | 0.15         | TCLP                          | · ·   |
|              |                         |  |                 |              |                               | Using 925 mg/kg, the theoretical leachate   |
|              |                         | UHC Treatment                                      |                 |              | 11 mg/L                       | value is 46.2 mg/L which is above the nww   |
| Nickel       | 925 J                   | Standard   | UHC             | 3.98         | TCLP                          | treatment standard limt. This is a UHC.   |
| Potassium    | 5520 J                  | NA   | NA NA           | 3.96<br>NA   | NA NA                         | treatment standard limt. This is a Onc.   |
| rotassium    | 7.8 B U                 | INA  |                 | INA          | 147                           |   |
|              | (0.047) mg/L,           |  |                 |              | 5.7 mg/L                      |   |
| Selenium     | TCLP                    | 1 (D010)   | D010            | 0.82         |                               |   |
|              |                         |  |                 |              | 1 1(3)2 1                     | · · · · · · · · · · · · · · · · · · ·   |
| Silicon      | 4510 J                  |  |                 |              | TCLP<br>NA                    |   |
| Silicon      | 4510 J                  | NA   | NA NA           | NA<br>NA     | NA NA                         |   |
| Silicon      |                         | NA<br>5 (D011), UHC                                |                 |              | NA                            |   |
|              | 315 0.022               | NA<br>5 (D011), UHC<br>Treatment                   | NA              | NA           | NA<br>0.14 mg/L               |   |
| Silver       | 315 0.022<br>mg/L, TCLP | NA<br>5 (D011), UHC<br>Treatment<br>Standard       |                 | NA<br>0.43   | NA<br>0.14 mg/L<br>TCLP       |   |
|              | 315 0.022               | NA<br>5 (D011), UHC<br>Treatment                   | NA<br>D011, UHC | NA           | NA<br>0.14 mg/L               | Using 2.1 mg/kg, the theoretical leachate   |
| Silver       | 315 0.022<br>mg/L, TCLP | NA<br>5 (D011), UHC<br>Treatment<br>Standard<br>NA | NA<br>D011, UHC | NA<br>0.43   | NA<br>0.14 mg/L<br>TCLP<br>NA | Using 2.1 mg/kg, the theoretical leachate value is 0.1 mg/L which is below the nww                          |
| Silver       | 315 0.022<br>mg/L, TCLP | NA<br>5 (D011), UHC<br>Treatment<br>Standard       | NA<br>D011, UHC | NA<br>0.43   | NA<br>0.14 mg/L<br>TCLP       | Using 2.1 mg/kg, the theoretical leachate value is 0.1 mg/L which is below the nww treatment standard limt. |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

B = Reported value is > to instrument detection limit but < contract required detection limit.

D = Dilution Factor of 10.

#### INEEL V-2 Sludge, Inorganic Analysis

|              | Concentration | Applicable<br>Regulatory | Applicable<br>RCRA Waste | LDR<br>Treatment<br>Standard for<br>wastewater | LDR Treatment Standard for non- wastewater |          |
|--------------|---------------|--------------------------|--------------------------|--|--|----------|
| Constituents | mg/kg         | Limit                    | Code                     | in mg/L  | in mg/kg                                   | Comments |
| Vanadium     | U (0.76)      | NA                       | NA                       | NA   | NA   |          |
| Zinc         | 4370 J        | NA                       | NA                       | NA   | NA   |          |

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

B = Reported value is > to instrument detection limit but < contract required detection limit.

D = Dilution Factor of 10.

INEEL V-2 Sludge, Miscellaneous Analysis

TSF-09, . evision 1

| L LDR | LDR Treatment | Treatment Standard for | Applicable Standard for non- | ry RCRA Waste wastewater wa | mg/kg Limit Code in mg/L in mg/kg Comments | 1.22 None NA NA NA | 136 None NA NA NA | U (5) None NA NA NA | U (2) None NA NA NA | U (4) None NA NA NA | 21.1 None NA NA NA 21.1 | 186 None NA NA NA 186 | Wastewater is defined as < 1% TOC and < 1% | 200,000 < 1% NA NA TSS. | 1240 NA NA NA 1240 | Wastewater is defined as < 1% TOC and < 1% | s NA NA NA TSS.        | 7.6-7.9 ≤ 2 or ≥ 12.5 None NA NA | 1.01-1.03 |
|-------|---------------|------------------------|------------------------------|-----------------------------|--|--------------------|-------------------|---------------------|---------------------|---------------------|-------------------------|-----------------------|--|-------------------------|--------------------|--|------------------------|----------------------------------|-----------|
|       |               |                        |                              | Concentratio                | mg/kg                                      | 1.22               | 136               | (2)                 | U (2)               | U (4)               | 21.1                    | 186                   |  | 200,000                 | 1240               |  | ΑN                     | 6.7-9.7                          | 1.01-1.03 |
|       |               |                        |                              |                             | Constituents                               | Bromide            | Chloride          | Fluoride            | Nitrate             | Nitrite             | Phosphate               | Sulfate               |  | Total Organic Carbon    | Total Halides      |  | Total Suspended Solids | Hd                               | Density   |

U = Not Detected (Detection limit in parenthesis).
B = Not defined in INEEL.

NP = Analysis not performed. TOC = 200000 mg/kg = 20 %, which is > 1%. This sludge is considered a non-wastewater.

|                     | Concentration | Applicable<br>Regulatory                               | Applicable<br>TSCA/RCRA | LDR<br>Treatment<br>Standard for<br>wastewater | wastewater |   |
|---------------------|---------------|--|-------------------------|--|------------|---|
| Constituents        | mg/kg         | Limit  | Waste Code              | in mg/L  | in mg/kg   | Comments  |
| Aroclor-1016        | U (13)        |  | None                    | NA   | NA         |   |
| Aroclor-1221        | U (26)        | NA   | NA                      | NA   | NA         |   |
| Aroclor-1232        | U (13)        | NA   | NA                      | NA   | NA         |   |
| Aroclor-1242        | U (13)        | NA   | NA                      | NA   | NA         |   |
| Aroclor-1248        | U (13)        | NA   | NA                      | NA   | NA         |   |
| Aroclor-1254        | U (13)        | NA   | NA                      | NA   | NA         |   |
| Aroclor-1260        | 260 D         | NA   | NA                      | NA   | NA         |   |
|                     |               | 50 mg/kg for<br>TSCA, UHC<br>Treatment<br>Standard for |                         |  |            | This waste is regulated under TSCA and it may be subject to the UHC treatment standard level. Therefore, this waste must be incinerated prior to disposal for purposes of |
| Total Concentration | 260 D         | RCRA   | None                    | 0.1  | 10         | PCBs.   |

U = Not Detected (Detection limit in parenthesis).

D = Dilution Factor of 10

# INEEL OU 1-10 Site TSF-09, Tank V-3 Preliminary Liquid Phase Chemical Characterization Summary

- The <u>liquid phase</u> of the waste associated with this tank <u>is considered a wastewater</u> for purposes of complying with the Land Disposal Restrictions, in that it contains <1% TOC and <1% TSS. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.
- Hazardous Waste Determination: Highest concentrations detected in the waste are reported.

The RCRA Waste codes that apply to this waste are as follows:

| Constituent         | Concentration Detected in Waste (mg/L) | Regulatory<br>Limit<br>(mg/L)                                     | Applicable<br>Waste<br>Code | LDR Treatment Standard for wastewater (mg/L) |
|---------------------|--|---|-----------------------------|--|
| Chloromethane       | 0.01                                   | 0.19  | UHC                         | 0.19   |
| 2,4-Dinitrotoluene  | ND @ 1                                 | 0.13  | D030                        | 0.32   |
| Hexachlorobenzene   | ND @ 1                                 | 0.13  | D032                        | 0.055  |
| Hexachlorobutadiene | ND @ 1                                 | 0.5   | D033                        | 0.055  |
| Trichloroethene     | 0.2                                    | 0.5 mg/L as<br>D040, None<br>if F-listed,<br>or 0.054 as<br>a UHC | F001                        | 0.054  |

- UHC = Underlying Hazardous Constituent ND = Not Detected
- Based on a review of the inorganic analysis, antimony is the only constituent, which
  appears to require re-analysis, since the data was rejected during data validation and
  determined to be unusable. Since antimony is only regulated as an underlying
  hazardous constituent, re-analysis is not required since this waste does not exhibit a
  characteristic of a hazardous waste, triggering the requirement to treat for underlying
  hazardous constituents.
- Based on a review of the volatile organic analysis, chloromethane is the only
  constituent, which appears to require re-analysis, since the data was rejected during
  data validation and determined to be unusable. Therefore, chloromethane is assumed
  to be present at the detection limit value and identified as an underlying hazardous
  constituent.
- The detection limits for a majority of the SVOCs, except for bis(2-ethylhexyl) phthalate and pyrene, were above the wastewater treatment standards. However, since this waste will not be re-analyzed for these constituents, the following SVOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and are identified as underlying hazardous constituents: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene,

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Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, 2,4-Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2.4-Dinitrophenol, 2.6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd) pyrene, 2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-din-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, Pyridine, 1,2,4-Trichlorobenzene, 2,4,5-Trichlorophenol, and 2,4,6-Trichlorophenol.. Three of the SVOC constituents (2,4-Dinitrotoluene, Hexachlorobenzene, and Hexachlorobutadiene) also had detection limit above the toxicity characteristic levels. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituent(s) are not present in the wasteHowever, this waste will not be re-analyzed for 2.4-Dinitrotoluene, Hexachlorobenzene, and Hexachlorobutadiene, and it is

Based on a review of the analytical data provided by INEEL, this waste is considered
a hazardous waste based on the presence of Trichloroethene as an F-listed
constituent, and as a characteristic waste, which must be treatment to meet the land
disposal restrictions.

assumed that these constituents are present at the detection limit value (as identified

#### • Recommendation:

above)..

If this waste will not be treated on-site, the waste acceptance criteria of possible off-site treatment facilities should also be considered.

|                      | I             |                                 |                  |              | LDR          |          |
|----------------------|---------------|---------------------------------|------------------|--------------|--------------|----------|
|                      |               |                                 |                  | LDR          | Treatment    |          |
|                      |               |                                 |                  | Treatment    | Standard for |          |
|                      |               | Applicable                      | Applicable       | Standard for |              |          |
| İ                    | Concentration | Regulatory                      | RCRA Waste       | wastewater   | wastewater   | ,        |
| Constituents         | mg/L          | Limit                           | Code             | in mg/l      | in mg/kg     | Comments |
|                      | 31.0          | Treatment                       |                  |              |              |          |
|                      |               | standard limit if               |                  |              |              |          |
| Acetone              | U (0.015) J   | UHC                             | UHC              | 0.28         | 160          |          |
|                      |               | 0.5 mg/l (D018)                 |                  |              |              |          |
|                      |               | or treatment                    |                  |              |              |          |
|                      |               | standard limit if               |                  |              |              |          |
| Benzene              | U (0.01) J    | UHC                             | D018 or UHC      | 0.14         | 10           |          |
|                      |               | Treatment                       |                  |              |              |          |
|                      |               | standard limit if               |                  |              |              |          |
| Bromodichloromethane | U (0.01) J    | UHC                             | UHC              | 0.35         | 15           |          |
|                      |               | Treatment                       |                  |              |              |          |
| Bromoform            |               | standard limit if               |                  |              |              |          |
| (Tribromomethane)    | U (0.01) J    | UHC                             | UHC              | 0.63         | 15           |          |
|                      |               | Treatment                       |                  |              |              |          |
| <b>D</b>             | 11 (0.04)     | standard limit if               |                  |              |              |          |
| Bromomethane         | U (0.01) J    | UHC                             | UHC              | 0.11         | 15           |          |
|                      |               | 200 mg/l (D025)                 |                  |              |              |          |
|                      |               | 200 mg/l (D035)<br>or treatment |                  |              |              |          |
|                      | =             | standard limit if               |                  |              |              |          |
| 2-Butanone (MEK)     | U (0.01) J    | UHC                             | D035 or UHC      | 0.28         | 36           |          |
| Z-DUIGHOHE (MEK)     | 0 (0.01) 3    | Treatment                       | טוט ממטט טו טרוכ | U.20         | 30           |          |
|                      |               | standard limit if               |                  |              |              |          |
| Carbon disulfide     | U (0.01) J    | UHC                             | UHC              | 3.8          | 4.8 mg/l     |          |
| Saiboir alounido     | 3 (0.01) 0    | Treatment                       | 0110             | 0.0          | -7.0 mg/l    |          |
|                      |               | standard limit if               |                  |              |              |          |
| Carbon tetrachloride | U (0.01) J    | UHC                             | UHC              | 0.057        | 6            |          |

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J = Estimated Value

R = Result rejected during validation and unusable.

INEEL V-3 Liquids, VOC Analysis

|                         |               | 1                     |             | T            | LDR          |   |
|-------------------------|---------------|-----------------------|-------------|--------------|--------------|---|
|                         |               |                       |             | LDR          | Treatment    |   |
|                         |               |                       |             | Treatment    | Standard for |   |
|                         |               | Applicable            | Applicable  | Standard for |              |   |
|                         | Concentration | Regulatory            | RCRA Waste  | wastewater   | wastewater   |   |
| Constituents            | mg/L          | Limit                 | Code        | in mg/l      |              | Comments  |
| Constituents            | IIIg/L        | Limit                 | Code        | in mg/i      | in mg/kg     | Comments  |
|                         |               | 100 mg/l (D021)       |             |              |              |   |
|                         |               | or treatment          |             |              |              |   |
|                         | <b>.</b>      | standard limit if     |             |              |              |   |
| Chlorobenzene           | U (0.01) J    | UHC                   | D021 or UHC | 0.057        | 6            |   |
|                         |               | Treatment             |             |              |              |   |
|                         |               | standard limit if     |             |              |              |   |
| Chloroethane            | U (0.01) J    | UHC                   | UHC         | 0.27         | 6            |   |
|                         |               | 6 mg/l (D022) or      |             |              |              |   |
|                         |               | treatment             |             |              |              |   |
|                         |               | standard limit if     |             |              | _            |   |
| Chloroform              | U (0.01) J    | UHC                   | D022 or UHC | 0.046        | 6            |   |
|                         |               | Treatment             |             |              |              | Since this value was rejected, it will have to be |
| Chloromethane           | 0.01 R        | standard limit if UHC | UHC         | 0.19         | 20           | re-analyzed to determine concentration in the     |
| Chloromethane           | 0.01 K        | Treatment             | UNC         | 0.19         | 30           | waste.  |
| Dibromochloromethane    |               | standard limit if     |             |              |              |   |
| (Chlorodibromomethane)  | U (0.01) J    | UHC                   | UHC         | 0.057        | 15           |   |
| (Other dubrome methano) | 0 (0.01) 0    | Treatment             | 0.10        | 0.007        | 10           |   |
|                         |               | standard limit if     |             |              |              |   |
| 1,1-Dichloroethane      | 0.019 J       | UHC                   | UHC         | 0.059        | 6            |   |
|                         |               | ,                     |             |              |              |   |
|                         |               | 0.5 mg/l (D028),      |             |              |              |   |
|                         |               | or treatment          |             |              |              |   |
|                         |               | standard limit if     |             |              |              |   |
| 1,2-Dichloroethane      | U (0.01) J    | UHC                   | D028 or UHC | 0.21         | 6            |   |

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| ·                       | <u> </u>      | <u> </u>          |             |              | LDR          |  |
|-------------------------|---------------|-------------------|-------------|--------------|--------------|--|
|                         |               |                   |             | LDR          | Treatment    | •                                      |
|                         |               |                   |             |              | 1            |  |
|                         |               | A                 | A 11 1- 1   | Treatment    | Standard for |  |
| i                       |               | Applicable        | Applicable  | Standard for | 1 I          |  |
|                         | Concentration | , , ,             | RCRA Waste  | wastewater   | wastewater   |  |
| Constituents            | mg/L          | Limit             | Code        | in mg/l      | in mg/kg     | Comments                               |
|                         |               | 0.7 mg/l (D029)   |             |              |              |  |
|                         |               | or treatment      |             |              |              |  |
|                         |               | standard limit if |             |              |              |  |
| 1,1-Dichloroethene      | U (0.01) J    | UHC               | D029 or UHC | 0.025        | 6            |  |
| ĺ                       |               | Treatment         |             |              |              | The 0.2 mg/L concentration exceeds the |
| 1,2-Dichloroethene      |               | standard limit if |             |              |              | ww treatment standards and may be a    |
| (total)                 | 0.2           | UHC               | UHC         | 0.054        | 30           | UHC.                                   |
|                         |               | Treatment         |             |              |              |  |
|                         |               | standard limit if |             |              |              | •                                      |
| 1,2-Dichloropropane     | U (0.01) J    | UHC               | UHC         | 0.85         | 18           |  |
|                         |               | Treatment         |             |              |              |  |
|                         |               | standard limit if |             | Ī            | :            |  |
| cis-1,3-Dichloropropene | U (0.01) J    | UHC               | UHC         | 0.036        | 18           |  |
|                         |               | Treatment         |             |              |              |  |
| trans-1,3-              |               | standard limit if |             |              |              |  |
| Dichloropropene         | U (0.01) J    | UHC               | UHC         | 0.036        | 18           |  |
|                         |               | Treatment         |             |              |              |  |
|                         |               | standard limit if |             |              |              |  |
| Ethylbenzene            | U (0.01) J    | UHC               | UHC         | 0.057        | 10           |  |
| 2-Hexanone (Methyl n-   |               |                   |             |              |              |  |
| butyl ketone)           | U (0.01) J    | NA                | NA          | NA           | NA           |  |
|                         |               | Treatment         |             |              |              |  |
| 4-Methyl-2-pentanone    |               | standard limit if |             |              |              |  |
| (MIK)                   | U (0.01) J    | UHC               | UHC         | 0.14         | 33           |  |
|                         |               | Treatment         |             |              |              |  |
|                         |               | standard limit if |             |              |              |  |
| Methylene chloride      | U (0.01) J    | UHC               | UHC         | 0.089        | 30           |  |

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|                       |               |                          |             | T            | LDR          |   |
|-----------------------|---------------|--------------------------|-------------|--------------|--------------|---|
|                       |               |                          |             | LDR          | Treatment    |   |
|                       |               |                          |             | Treatment    | Standard for |   |
|                       |               | Applicable               | Applicable  | Standard for | 1            |   |
|                       | Concentration | Regulatory               | RCRA Waste  | wastewater   | wastewater   |   |
| Constituents          | mg/L          | Limit                    | Code        | in mg/l      | in mg/kg     | Comments                                    |
| Styrene               | U (0.01) J    | NA                       | NA          | NA           | NA           |   |
|                       |               | Treatment                |             |              |              |   |
| 1,1,2,2-              |               | standard limit if        |             |              |              |   |
| Tetrachloroethane     | U (0.01) J    | UHC                      | UHC         | 0.057        | 6            |   |
|                       |               | 0.7 mg/l (D039)          |             |              |              |   |
|                       |               | or treatment             |             |              |              |   |
|                       |               | standard limit if        |             |              |              |   |
| Tetrachloroethene     | U (0.01) J    | UHC                      | D039 or UHC | 0.056        | 6            |   |
|                       |               | Treatment                |             |              |              |   |
|                       |               | standard limit if        |             |              |              |   |
| Toluene               | U (0.01) J    | UHC                      | UHC         | 0.08         | 10           |   |
|                       |               | Treatment                |             |              |              |   |
| 4 4 4 Triphlana Mana  | 11 (0.04)     | standard limit if        |             | 0.054        |              |   |
| 1,1,1-Trichloroethane | U (0.01) J    | UHC                      | UHC         | 0.054        | 6            |   |
|                       |               | Treatment                |             |              |              |   |
| 1,1,2-Trichloroethane | 11 (0.04) 1   | standard limit if<br>UHC | UHC         | 0.054        |              |   |
| 1,1,2-Trichioroeulane | U (0.01) J    | UHC                      | UHC         | 0.054        | 6            | 0.2 mg/L is below the characteristic limit, |
|                       |               |                          |             |              |              | but exceeds the wastewater treatment        |
| -                     |               |                          |             |              |              | standard. Therefore it may be F-listed or a |
| Trichloroethene       | 0.2           | None if listed           | F001        | 0.054        | c            | UHC.  |
| Tricilloroethene      | U.Z           | None ii listeu           | FUUI        | 0.034        | 6            | Unc.  |
|                       |               | 0.2 mg/l (D043),         |             |              |              |   |
|                       |               | orTreatment              |             |              |              |   |
|                       |               | standard limit if        |             |              |              |   |
| Vinyl chloride        | 0.011 J       | UHC                      | D043 or UHC | 0.27         | 6            |   |
| Xylene (ortho)        | U (0.01) J    | NA                       | NA          | NA           | NA           | :   |

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| Constituents           | Concentration<br>mg/L | Applicable<br>Regulatory<br>Limit | Applicable<br>RCRA Waste<br>Code | LDR Treatment Standard for wastewater in mg/l | LDR Treatment Standard for non- wastewater in mg/kg | Comments |
|------------------------|-----------------------|-----------------------------------|----------------------------------|---|---|----------|
|                        |                       | Treatment                         |                                  |   |   |          |
| Xylene (total meta and |                       | standard limit if                 |                                  |   |   |          |
| para)                  | U (0.01) J            | UHC                               | UHC                              | 0.32  | 30  |          |

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